

EXPLANATION OF THE PLATES.

PLATE LXI.

- Fig. 1 represents a view of a portion of the external surface of the late Mr. Henry Deane's specimen of *Farrea spinifera*, $\times 61$ linear.
- Fig. 2 represents a portion of the dermal surface of *Farrea spinulenta*, with its numerous quadrifurcate spinulo-sexradiate stellate retentive spicula, $\times 80$ linear.
- Fig. 3. One of the quadrifurcate spinulo-sexradiate stellate spicula, $\times 666$ linear.
- Fig. 4. A sexradiate stellate spiculum with attenuated radii, from *Acyoncellum speciosum*, to compare with those of *Farrea spinulenta*, $\times 666$ linear.

PLATE LXII.

- Fig. 1. A portion of the skeleton-rete of *Farrea aculeata*, exhibiting the general structure of the sponge and the characteristic mode of disposition of the aculei, $\times 61$ linear.
- Fig. 2 represents a portion of the outer or inhalant surface of *Farrea robusta*, with the dermal membrane in a fine state of preservation, with its numerous retentive and defensive spicula *in situ*, $\times 80$ linear.
- Fig. 3. One of the contort bihamate retentive spicula, $\times 666$ linear.
- Fig. 4. One of the minute bidentate equianchorate retentive spicula, $\times 666$ linear.
- Fig. 5. A fully developed subspinulate attenuato-acuate internal defensive spiculum, entirely but incipiently spinous, $\times 666$ linear.
- Fig. 6. One of the rectangulate sexradiate internal defensive organs, entirely but incipiently spinous, based on a portion of the skeleton-fibre, and projected into one of the areas of the skeleton-rete, $\times 666$.

November 16, 1875.

Dr. Günther, F.R.S., V.P., in the Chair.

The Secretary read the following report on the additions to the Society's Menagerie during the month of October 1875.

The total number of registered additions to the Society's Menagerie during the month of October was 73, of which 39 were by presentation, 16 by purchase, 2 by exchange, 5 by birth, and 11 were received on deposit. The total number of departures during the same period, by death and removals, was 130.

The most noticeable additions during the month of October were as follows:—

1. A Scolopaceous Courlan (*Aramus scolopaceus*) from South America, purchased 6th October, 1875. This bird was in a very weak condition when received, and did not live long, but is of interest as being the first example of this aberrant form yet received alive.

2. A Binturong, from Malacca, presented by Capt. A. R. Ord, October 19th. We have likewise now in the Gardens a Grey Binturong (*Arctictis albifrons*, F. Cuv.) from Borneo, presented by Sir Harry Ord in 1873; so that we may hope eventually to solve the question whether this and the Black Binturong (*A. binturong*) are really different species, as considered by F. Cuvier, or mere varieties.

Mr. Slater exhibited the upper horn of a two-horned Rhinoceros that had been shot in March last by Lieut.-Col. C. Napier Sturt, F.Z.S. in the valley of the Brahmapootra, about 40 or 50 miles north-east of Dohbree, when in company with Mr. Archibald Campbell, Deputy-Commissioner of Dohbree, and Mr. Williamson, Governor of the Towra Hills. The place where the Rhinoceros was found was near the gorge where the Sunkos river issues from the Bhotan range, and is actually within the old boundary of Bhotan.

Mr. Slater remarked that this seemed to prove conclusively the existence of a two-horned species of Rhinoceros in Assam, which would probably turn out to be the same as that from Chittagong, now living in the Society's Gardens.

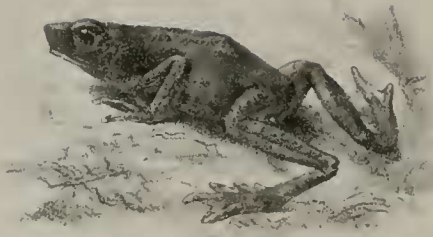
Mr. Slater read an extract of a letter addressed to him by M. le Dr. N. Funck, Director of the Zoological Garden, Cologne. Dr. Funck stated that the bird figured in Mr. Slater's article on the Curassows, recently published in the Society's 'Transactions' (vol. ix. pl. 53) as *Pauxis galeata*, var. *rubra*, was the true female of *P. galeata*. Dr. Funck had traversed the district inhabited by this species from Puerto Cabello in Venezuela, to Valencia and Truxillo*, and had killed upwards of 50 individuals; amongst these were many females, shot at the side of the males, coloured exactly as the above-mentioned figure.

Under these circumstances, Mr. Slater was now inclined to believe that the case of the female resembling the male in plumage, of which two instances were given in the article above mentioned, was abnormal, corresponding to that known to occur occasionally in the females of other birds.

Mr. Seebohm, F.Z.S., exhibited a series of rare and interesting birds and eggs from the tundras and deltas of the Petchora river, North-Eastern Russia, collected there by Mr. J. A. Harvie-Brown and himself during the present year. The following were the chief objects:—The eggs and young in down of the Grey Plover (*Squatarola helvetica*); the nest, eggs, and young in down of the Little Stint (*Tringa minima*); the eggs of Bewick's Swan (*Cygnus bewickii*); skins, nest, and eggs of *Phylloscopus tristis* (new to the European fauna); skins, nest, and eggs of a new species of *Anthus*, which Mr. Dresser has named *A. seebohmi*, after its discoverer; skins, nest, and eggs of the Yellow-headed Wagtail (*Motacilla citreola*); skins of *Parus kamschatkensis*; skins of a Herring-Gull, differing specifically from *Larus argentatus* and *L. leucophæus*, and probably identical with *Larus cachinnans* of Pallas.

Eggs and down of ten species of Ducks, including the Smew (*Mergus albellas*), obtained in the valley of the Petchora were likewise exhibited.

* Dr. Funck states that *Pauxis galeata* is abundant in the forests from San Estevan (one league from Puerto Cabello) up to the Cumbre of Valencia, *i. e.* from 1000 to 3000 feet in altitude, and likewise in the mountains of Noigua and Montalban in the same province.



A.



C.



B.



G. H. Ford

Miner Bros. & Co.

A ANSONIA ORNATA. B POLYPEDATES BEDDOMII C IXALUS DIPLOSTICTUS



B.



C.



A.





B.



A.



B.



C.



A.



Mr. A. H. Garrod read a paper on the structure of the Manatee (*Manatus americanus*) lately living in the Society's Gardens. Mr. Garrod drew attention to a peculiarity in the mechanism of the upper lip, by which that structure is capable, through the combined transverse movements of the lateral pads which compose it, of employing the lips as an independent prehensile organ. The size of the blood-disks was also given, together with drawings of the external and internal conformation of the brain.

This paper will be printed in the Society's Transactions.

The following papers were read:—

1. Third Report on Collections of Indian Reptiles obtained by the British Museum. By Dr. ALBERT GÜNTHER, V.P.R.S., V.P.Z.S.

[Received October 19, 1875.]

(Plates LXIII.—LXVI.)

In my second Report (see above, p. 224) I have treated of Lizards and Snakes collected by Lieut.-Col. Beddome and the late Mr. Jerdon. The present paper is a continuation of the account of these collections, and treats of the Batrachians.

RANA GRACILIS (Wiegman.).

I consider *Rana agricola* (Jerd.) and *Rana nilgirica* (Jerd.) varieties of this species, which is remarkable for the amount of variation in the length of the limbs and toes.

RANA TIGRINA (Daud.).

A specimen named by Mr. Jerdon, and representing his "*Rana crassa*" belongs to this species.

RANA LIEBIGII (Gthr.).

I regard *Rana sikkimensis* (Jerd.) as not specifically distinct from *Rana liebigii*.

RANA VERRUCOSA, sp. n.

Snout of moderate length, somewhat pointed, with indistinct canthus rostralis; tympanum rather small, smaller than the eye. Inner nares not quite so wide as the Eustachian tubes. Vomerine teeth in two oblique series, each commencing from the front margin of the inner nostril. Upper parts covered with numerous larger and smaller warts, tubercles, and short folds. Limbs well developed, the distance between vent and heel being equal to the length of the body. Tips of the fingers and toes scarcely swollen; the fourth toe one third longer than the fifth. Toes completely webbed; but the web does not extend to the extremity of the fourth toe. Metatarsus with an elongate inner and a minute outer tubercle.

Brownish, marbled with darker, sometimes with a broad yellow vertebral band. Limbs with cross bars; hinder part of the thighs black, with white vermiculated lines and spots. Lower parts whitish, throat sometimes marbled with brown.

Several specimens were collected by Lieut.-Col. Beddome in Malabar. The body of the largest is 60 millims. long; length of hind limb 103 millims.

RANA PYGMÆA, sp. n.

Similar in habit to a young *Rana kuhlii*. Head much depressed, with very short, rounded snout; canthus rostralis absent; eyes prominent, obliquely directed forwards. Skin smooth, with a few irregular folds behind the head. Tympanum hidden; inner nares and Eustachian tubes small. Vomerine teeth in two short groups close together, behind the inner nostrils. Limbs short; fingers and toes short, the latter half-webbed. One metatarsal tubercle. Upper parts nearly uniformly black or blackish brown, the lower dull yellow.

A minute species, the body of an adult female with mature ova in the oviduct being only 25 millims. long; length of hind limb 31 millims.

Several specimens were collected by Lieut.-Col. Beddome in Malabar.

RANA HEXADACTYLA (Less.).

The specimens named *Rana vittata* by Lieut.-Col. Beddome are the young of this species. Three other young specimens were presented to the Museum by Mr. Jerdon under the name of "*Pyxi-cephalus pluvialis*, Jerd."

XENOPHRYS MONTICOLA (Gthr.).

"*Xenophrys gigas*, Jerd.," is the adult of this species.

DIPLOPELMA.

In Mr. Jerdon's collection there are specimens which he has identified with the two species formerly named by him "*Engystoma rubrum*" and "*Engystoma carnaticum*." Those to which he has applied the former name are, in my opinion, the same as *D. ornatum* (D. and B., Gthr.). The others, four in number, are from Assam; and two of them I am inclined to refer likewise to *D. ornatum*, whilst the other two are identical with *D. pulchrum* (Hallow.).

NANNOPHRYS CEYLONENSIS (Gthr.).

Trachycephalus ceylanicus, Ferguson, Ann. & Mag. Nat. Hist. 1875, vol. xv., is identical with this species.

ANSONIA ORNATA, sp. n. (Plate LXIII. fig. A.)

Anterior half of the back finely tubercular, the remainder smooth. Tympanum very distinct, about half the size of the eye. Fingers free, the first much shorter than the second. Toes short, broadly

webbed; two small metatarsal tubercles, no tarsal fold. Black; upper side of the head generally grey or with some greyish spots. Throat, abdomen, and the lower side of the legs with large bright yellow spots.

Several specimens were obtained by Lieut.-Col. Beddome from the Brumagherries.

	millim.
Length of body	30
„ hind limb	44
„ tarsus	8
„ fourth toe	12

BUFO BEDDOMII, sp. n.

Crown broad, flat, without bony enlargement. Snout short, projecting, with well marked canthus rostralis. Limbs of moderate length. The first and fourth fingers a little longer than the second. Toes broadly webbed. Metatarsus with two small callosities; no fold along the tarsus. All the upper parts covered with rough tubercles; parotoid ovate; about twice as long as broad. Tympanum very small; Eustachian tubes much narrower than choanæ. Above dark brown, with some indistinct black spots; the two inner fingers and the three inner toes whitish above. Lower parts whitish, densely marbled with black.

One specimen was obtained by Col. Beddome in Malabar; it is 43 millims. long; hind limb 61 millims.

BUFO HOLOLIUS, sp. n. (Plate LXIV. fig. A.)

Crown broad, flat, without bony enlargement. Snout short, depressed, projecting, with well marked canthus rostralis. Limbs and fingers rather short; the fourth finger a little longer than the second. Toes short, webbed at the base only. Metatarsus with two small callosities; no fold along the edge of the tarsus. Back with very flat, smooth, small glandular patches; also the parotoid is flat, scarcely raised above the level of the smooth skin. Tympanum perfectly circular, very distinct, not much smaller than the eye. Inner nares and Eustachian tubes narrow. Upper parts olive-coloured, marbled with brown; lower parts whitish.

One specimen was found by Col. Beddome in Malabar; it is 38 millims. long; hind limb 45 millims.

HYLORANA TEMPORALIS (Gthr.).

Specimens collected by Col. Beddome in the Anamallays, and determined as "*Hylorana flavescens*" by Mr. Jerdon in 1870, prove to differ from *H. temporalis* only by having the brown temporal band extended on to the sides of the body. There is no evidence whatever that this is the frog "with the yellow sides" named "*Rana flavescens*" by Mr. Jerdon in 1854.

POLYPEDATES CHLORONOTUS, sp. n. (Plate LXV. fig. A.)

In habit somewhat resembling a *Hylorana*.

Snout of moderate length, somewhat pointed, with distinct canthus rostralis, and vertical, concave loreal region. Eye large. Tympanum one third the size of the eye in females, but larger in males. Limbs strong; disks well developed, those of the fingers rather larger than those of the toes. Fingers not webbed, the first rather longer than the second, and equal in length to the fourth, the third being the longest. Toes completely webbed; a single elongate metatarsal tubercle. Skin quite smooth, not adherent to the surface of the head; no indication of a curved osseous crest. Choanæ and Eustachian tubes of moderate width; vomerine teeth in two oblique series between the choanæ. Tongue without free papilla. Male with an external vocal sac behind each angle of the mouth. Upper surface of the head and back green (sometimes with some irregular black spots); sides of the head and body and the limbs dark brown, this colour being sharply defined towards the green of the back; lower parts whitish, with the throat and chest brownish. A white line along the upper lip towards the axil. Loins and hind part of the thighs marbled with whitish. Legs with dark cross bars above.

	Male. millim.	Female. millim.
Length of body	51	93
„ hind limb	93	175
„ tarsus	15	28
„ fourth toe	27	50

Several specimens were brought by Mr. Jerdon from Darjeeling.

This is the frog mentioned by Mr. Jerdon (Proc. As. Soc. 1870, p. 83) and described by Dr. Anderson (Proc. Zool. Soc. 1871, p. 208) as *Polypedates smaragdinus* of Blyth; but there is no evidence whatever that Blyth had this species before him; he merely says (Journ. As. Soc. Beng. xxi. p. 355):—"A tree-frog from the Naga hills, Assam (*P. smaragdinus*, nobis). Length of the body $3\frac{1}{4}$ inches, hind limb $5\frac{1}{4}$ inches. Wholly green above, changing in spirit to livid blue, underparts white." This vague diagnosis may apply to very different species, and certainly better to some than to the present frog from Darjeeling.

POLYPEDATES FORMOSUS, sp. n. (Plate LXV. fig. B.)

Habit similar to that of *P. afghana*.

Snout flat, short, rounded, with distinct canthus rostralis. Loreal region subvertical, with a very slight impression. Eye of moderate size; tympanum very small, only as large as the disk of the third finger. Limbs slender; fingers exceedingly long: the second longer than the first, but shorter than the fourth, the third exceeding the others in length; fingers not webbed, with large disks, larger than those of the toes. Toes fully webbed; metatarsal tubercle indistinct. Skin quite smooth. Choanæ and Eustachian tubes narrow; vomerine teeth in two very short groups between the choanæ. Tongue without free papilla. Upper parts green, mar-

bled with black, the black spots enclosing a number of small whitish dots. Legs and toes with black white-dotted cross bars. Lower parts light greenish, irregularly marbled with brown.

Length of body	millim.
„ third finger	64
„ hind limb	21
„ tarsus	115
„ fourth toe	19
	37

One specimen from Khassya in Mr. Jerdon's collection.

POLYPEDATES JERDONII, sp. n.

Snout broad, depressed, extremely short and obtuse, with indistinct canthus rostralis, and flat, slanting loreal region. Eye of moderate size; tympanum very small, much smaller than one of the digital disks. Limbs of moderate length; disks large, nearly equally large on the fingers and toes. Fingers conspicuously webbed at the base: second and fourth equal in length, a little longer than the first, and shorter than the third. Toes two thirds webbed; one ovate metatarsal tubercle. Skin nearly smooth above, granular below. Choanæ and Eustachian tubes narrow; vomerine teeth in two oblique series between the choanæ. No free papilla on the tongue. Upper parts brownish grey; forehead and an irregular broad band on each side whitish. Whitish below, throat with some brownish spots; anterior and posterior sides of the femur nearly colourless. Dark bars across the legs irregular and sometimes confluent.

Length of body	millim.
„ hind limb	48
„ tarsus	68
„ fourth toe	11
	22

Two specimens from Darjeeling, in Mr. Jerdon's collection.

POLYPEDATES BEDDOMII, sp. n. (Plate LXIII. fig. B.)

Habit similar to that of *P. maculatus*.

Snout flat, moderately long, rather obtuse, with distinct canthus rostralis. Loreal region flat, slanting. Eye rather large; tympanum at least half as large as the eye. Limbs strong and rather long; second finger rather shorter than first, which nearly equals the fourth; third longest of all. Fingers without any web, but with the disks well developed. Toes two thirds webbed, the cutaneous fold reaching to the disks, except in the fourth toe, in which it extends to the antepenultimate joint only. Metatarsus with an indistinct, elongate tubercle. Skin of the back with short longitudinal folds; a glandular curved fold from behind the orbit above the tympanum, to the armpit. Choanæ and Eustachian tubes rather small; vomerine teeth in two short, scarcely oblique series, between the choanæ. A long, free, pointed, conical papilla on the

middle of the tongue*. Upper parts light brownish olive, or pinkish, with some very obscure spots; a dark cross band between the eyes; a black band along the canthus rostralis, widening behind the eye, so as to cover the whole tympanum; legs obscurely barred; anterior and posterior sides of the thighs finely mottled with black.

	Spec. A. millim.	Spec. B. millim.
Length of body	55	45
„ hind limb	115	85
„ tarsus	11	13
„ fourth toe	30	24

Lieut.-Col. Beddome has collected specimens of this frog in Malabar and Travancore, in the Anamallays, and at Sevagherry.

POLYPEDATES BRACHYTARSUS, sp. n.

Closely allied to *P. beddomii*, but with a much shorter tarsus. Snout flat, somewhat pointed, with indistinct canthus rostralis; loreal region flat, slanting. Eye rather large; tympanum not quite half as large as the eye. Limbs of moderate length. Fingers without any web, and with moderately developed disks: the first, second, and fourth nearly equal in length, the third being the longest. Toes two thirds webbed, the cutaneous fold reaching to the disks, except in the fourth toe, in which it extends to the antepenultimate joint only. Metatarsus with a small indistinct tubercle. Skin of the back with short longitudinal folds; a glandular curved fold from behind the orbit, above the tympanum, to the armpit. Choanæ and Eustachian tubes of moderate size; vomerine teeth in two short oblique series. A free, pointed papilla in the middle of the tongue. Upper parts brown, mottled with darker; a broad, whitish, well-defined longitudinal band along the middle of the back to the end of the snout; an interocular brown band slightly encroaches upon the white band. Upper sides of the legs barred as usual; anterior and posterior sides of the thighs finely mottled with brown.

	Spec. A. millim.	Spec. B. millim.
Length of body	55	38
„ hind limb	99	58
„ tarsus	15	10
„ fourth toe	26	17

Two specimens from Lieut.-Col. Beddome's collection—one from the Anamallays, the other from Sevagherry.

POLYPEDATES BREVIPALMATUS, sp. n.

Habit similar to that of *P. maculatus*.

Snout short, flat, obtuse, with indistinct canthus rostralis; loreal

* I do not find that the presence of this papilla has been noticed before, although it is present in some of the other species of *Polypedates* and *Ixalus*; it is absent in *P. maculatus*. I do not know its function.

region flat, slanting. Eye of moderate size; tympanum about one third the size of the eye. Limbs of moderate length; disks rather small. Fingers without any web: the second rather longer than the first, and equal to the fourth, the third being the longest. Toes long, with a very short web. Metatarsal tubercle elongate. Skin of the back more or less tubercular, or nearly smooth. Choanæ and Eustachian tubes rather narrow; vomerine teeth in two very short series between the choanæ. A free, pointed papilla in the middle of the tongue. Upper parts brownish olive, mottled with brown; a dark interocular cross band; legs barred as usual. Lower parts more or less marbled with brown, sometimes brown with white dots, sometimes uniform whitish; anterior and posterior sides of the thighs mottled with brown.

	Spec. A. millim.	Spec. B. millim.
Length of body	44	34
„ hind limb	86	64
„ tarsus	14	11
„ fourth toe	25	19

Several specimens were collected by Lieut.-Col. Beddome in Malabar, and one in the Anamallays.

IXALUS VARIABILIS (Gthr.).

This species is not confined to Ceylon, but occurs in various parts of Southern India; it is common at Pycara. The variations of colour are endless, and frequently render the determination a task all the more difficult, as some of them approach closely the distribution of colours in other species. There are specimens with sub-crescentic brown bands on the back as in *Polypedates microtympanum*; others have round, milk-white spots about the lips, or on the sides, or all over the back. One variety has the back of a nearly uniform chocolate-brown, and a light-coloured band along each side. A whitish line along the canthus rostralis and superciliary margin is very frequent.

It is possible that the specimens which Mr. Jerdon noticed as *Phyllomedusa* (?) *wynaadensis* belonged to this species. But in a genus in which the distinction of closely allied species is most difficult for the zoologist with the specimens before him, it is impossible to say to which of them a short, insufficient note, penned 25 years ago, refers.

IXALUS GLANDULOSUS (Jerd.).

The specimens we have received from Mr. Theobald of this species were identified by him as the *Ixalus* (?) *glandulosa* of Jerdon—and, as I think, very properly, the sides of the specimens being largely glandular. On the other hand, Col. Beddome has collected specimens of the same species, which were determined by Mr. Jerdon himself as his *Phyllomedusa* (?) *tinniensi*. It will be difficult to decide from the original notes with which these names are accompa-

nied which of the two names ought to be applied, or whether they are synonyms.

IXALUS MONTANUS, sp. n. (Plate LXVI. fig. A.)

Snout short, as long as the eye, obtusely rounded in front, with distinct canthus rostralis. Tongue with a free, pointed papilla in the anterior part of the median line. Tympanum hidden below the skin. Skin nearly smooth, only in adult examples with some indistinct tubercles. The length of the body is more than the distance between vent and heel. No fold along the tarsus; metatarsus with a small, indistinct tubercle; fingers quite free; toes with a very short web; disks of moderate size. Old examples are nearly entirely of a dark purplish brown above, with scarcely any markings, the posterior side of the femur being marbled with black. Other specimens are of a lighter colour, with more or less symmetrical brown markings, the forehead being light-coloured. Abdomen sometimes uniform whitish, sometimes more or less reticulated with black.

Lieut.-Col. Beddome obtained this species on the Kudra Mukh, at an elevation of 6000 feet. One of the largest specimens is 38 millims. long, the length of the hind limb being 55 millims.

IXALUS DIPLOSTICTUS, sp. n. (Plate LXIII. fig. C.)

Snout of moderate length, rather pointed, with distinct canthus rostralis. Tongue with a free, pointed papilla in the anterior part of the median line. Tympanum distinct, not quite half the size of the eye. Skin of the back with some longitudinal folds. The length of the body equals the distance between vent and heel. A cutaneous fold along the tarsus, commencing from the single metatarsal tubercle; fingers quite free; toes slender, with a very short web. Disks small. Pinkish olive-coloured, with a black line along the canthus rostralis, broader behind the eye, and continued over the tympanum. Symmetrical black spots on the sides—one in front of the axil, another on the middle of the side of the trunk, a third above the loin; one or the other of these spots may be absent. Legs with dark cross bars; anal region and soles of the feet black. Abdomen light-coloured; throat sometimes mottled with brown.

Several specimens were collected by Lieut.-Col. Beddome in Malabar. One of the largest is 27 millims. long, the length of the hind limb being 46 millims.

IXALUS CHALAZODES, sp. n. (Plate LXVI. fig. B.)

Snout short, as long as the eye, obtusely rounded in front, with indistinct canthus rostralis. Tongue with a free, pointed papilla in the anterior part of the median line. Tympanum covered by the skin. Skin smooth; but in the inguinal region there are several series of white, smooth tubercles; several smaller similar tubercles in the anal region and along the tarsus; the length of the body is equal to the distance between vent and heel; no fold along the tarsus; metatarsus with a small indistinct tubercle; fingers quite free; toes half-

webbed; disks large. Upper parts uniform greenish, the tubercles mentioned showing like white dots. Lower parts yellowish white. The anterior and posterior sides of the femur yellow, slightly marbled with green.

One adult female was obtained by Lieut.-Col. Beddome from Travancore; it is 26 millims. long, the length of the hind limb being 42 millims.

IXALUS JERDONII, sp. n.

Snout very short, somewhat pointed, with distinct canthus rostralis. Tongue with a free pointed papilla in the anterior part of the median line. Tympanum extremely small, but distinct. Skin smooth. The length of the body is rather more than the distance between vent and heel. No fold along the tarsus; metatarsal tubercle small, indistinct; fingers with a rudimentary web; toes short, half-webbed. Disks moderately developed. Reddish olive, with indistinct darker markings on the back. Femur colourless in front and behind. Lower parts whitish. Length of body 43 millims., of hind limb 63 millims.

A single specimen from Jerdon's collection; on the bottle it was marked as coming from Darjeeling; but it is possible that this is the same specimen mentioned by Jerdon as having been found by him "in the Khasis," Proc. As. Soc. Beng. 1870, p. 85.

IXALUS BEDDOMII, sp. n.

Allied to *Ixalus femoralis* and *I. pulchellus*, but with a distinct canthus rostralis. Snout short, as long as the eye, obtusely rounded in front. Tongue without free pointed papilla in the middle. Tympanum very small, covered by the skin. Skin on the back smooth. The length of the body is nearly equal to the distance between vent and metatarsal joint. No fold along the tarsus; metatarsus with a small indistinct tubercle; fingers quite free; web between the toes very short; disks well developed. Upper parts uniform green, the lower whitish. The anterior and posterior sides of the femur are perfectly colourless; and only a narrow stripe along its upper side is green.

Several specimens, collected by Lieut.-Col. Beddome in Malabar, are 23 millims. long, the length of the hind limb being 35 millims.

IXALUS STICTOMERUS, sp. n. (Plate LXVI. fig. C.)

Snout of moderate length, rather pointed, with distinct canthus rostralis. Tongue without free pointed papilla in the middle. Tympanum very small, distinct. Skin smooth. The length of the body is less than the distance between vent and metatarsal tubercle; a cutaneous fold along the tarsus, commencing from the single small metatarsal tubercle; fingers with rudimentary web; toes of moderate length, half-webbed. Disks moderately developed. Olive-coloured, with indistinct symmetrical markings on the back, an interocular cross bar being darkest. A dark streak along the canthus rostralis is continued over the tympanum. Femur with three very indistinct

cross bars above, its anterior and posterior sides being blackish minutely marbled with white. Lower parts whitish.

A single specimen was obtained by Lieut.-Col. Beddome in Ceylon; it is 34 millims. long, the length of the hind leg being 48 millims.

HYLA ANNECTENS.

The frog mentioned by Mr. Jerdon as *Polypedates annectens* proves to be a species of *Hyla* closely allied to *H. chinensis*.

CALLULA TRIANGULARIS, sp. n.

Closely allied to *C. obscura*.

Back nearly smooth, with some flat tubercles in the middle. Fingers quite free, with the extremities truncated; toes free, of moderate length, not dilated at the ends. Tarsus without fold; metatarsus with two small tubercles. Olive-coloured above, with a large triangular black spot occupying nearly the whole length of the back, commencing from the occiput. Sides of the head and body, legs, and lower parts black, with olive-coloured spots.

Several specimens were obtained by Lieut.-Col. Beddome in Malabar. The largest are only 31 millims. long, the length of the hind limb being 40 millims. and of the free part of the fourth toe 8 millims.

CALLULA OLIVACEA, sp. n. (Plate LXIV. fig. B.)

Snout short, not very obtuse. Skin of the back nearly smooth, with scarcely any tubercles. Limbs of moderate length. Fingers long, quite free, with broad, truncated disks. Toes with a rudimentary web only, and not dilated at the ends. Tarsus without fold; metatarsal tubercles two, small. Olive-coloured above, marbled with black; lower parts white.

	millim.
Length of body	27
„ third finger	4.5
„ hind limb	33
„ tarsus	6
„ fourth toe	10

Two specimens were found by Lieut.-Col. Beddome on the Yella-gerry hills at an altitude of about 2000 feet.

PEDOSTIBES, g. n.

Differing from *Callula* in its physiognomy and habit, which resemble that of *Bufo*. Palate concave, without any transverse ridges.

PEDOSTIBES TUBERCULOSUS, sp. n. (Plate LXIV. fig. C.)

Body rather narrow and slender; head flat above, with short, pointed snout, distinct canthus rostralis, and perpendicular loreal region. Tongue narrow. Choanæ narrow; Eustachian tubes very narrow. Eye rather large. Tympanum extremely small, but distinct. Legs rather slender. Fingers dilated, distinctly webbed at

the base, with broad, truncated disks: the first very short, the second nearly twice as long, the fourth longer than the second, and the third the longest. A broad metacarpal tubercle. Toes rather short, broadly webbed, with truncated ends. Two small metatarsal tubercles; no tarsal fold. Skin of the upper parts tubercular, the largest tubercles being arranged along each side of the back; the upper surface of the head nearly smooth. Brownish grey, sides darker. A white band from below the eye to the axil; another white longitudinal band in the lumbar region. Lower parts whitish, spotted with black.

	millim.
Length of body	35
„ hind limb	48
„ tarsus	8
„ fourth toe	13

Two specimens from Malabar (*Lieut.-Col. Beddome*).

GEGENES (g. n. Cœciliid.).

Allied to *Epicrium*, but with the labial groove advanced to the front margin of the mouth, and very indistinct annular folds of the skin. Eyes not visible.

GEGENES CARNOSUS.

Epicrium carnosum, Beddome, Madr. Month. Journ. Med. Sc. 1870, p. 176.

Head depressed, of moderate width; body slender, cylindrical; tail extremely short, obtuse. Eyes not visible; mouth narrow, the labial grooves, or rather pores, are on a level with the front teeth, the nostrils close to the extremity of the snout. Upper jaw projecting beyond the lower. The skin of the body forms about 116 folds between the head and end of the tail; they are all indistinct, and quite obsolete on the back, only the hindmost being perfectly annular. Colour uniform brownish olive.

Two specimens, 7 inches long, were obtained by *Lieut.-Col. Beddome* from Periah Peak, Wynaad, at an altitude of about 5000 feet.

EXPLANATION OF PLATES LXIII.-LXVI.

PLATE LXIII.

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| Fig. A. <i>Ansonia ornata</i> , p. 568. | | Fig. C. <i>Ixalus diplostictus</i> , p. 574. |
| B. <i>Polypedates beddomii</i> , p. 571. | | |

PLATE LXIV.

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| Fig. A. <i>Bufo hololius</i> , p. 569. | | Fig. C. <i>Pedostibes tuberculosus</i> , p. 576. |
| B. <i>Callula olivacea</i> , p. 576. | | |

PLATE LXV.

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| Fig. A. <i>Polypedates chloronotus</i> , p. 569. | | Fig. B. <i>Polypedates formosus</i> , p. 570. |
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PLATE LXVI.

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|--|--|---|
| Fig. A. <i>Ixalus montanus</i> , p. 574. | | Fig. C. <i>Ixalus stictomerus</i> , p. 575. |
| B. — <i>chalazodes</i> , p. 574. | | |

2. List of Birds met with in North-eastern Queensland, chiefly at Rockingham Bay. By E. PIERSON RAMSAY, F.L.S. &c.

[Received August 24, 1875.]

1. *AQUILA AUDAX* *.

Scarce near the coast, but plentiful over the coast-range on the tablelands.

2. *HIERAËTUS MORPHNOIDES*.

This rare and interesting species is by no means easily obtained; a few specimens have visited the coast-range near the heads of the Herbert river, and on the tablelands. Mr. J. B. White procured several fine specimens of both sexes at Springsure and on the Barkoo river; and it is also found about 100 miles inland from Rockhampton. The sexes differ considerably in size; and individuals of both sexes vary in the colour and intensity of the plumage, some being of a rich dark rufous or rusty brown, others light buff (almost white) on the abdomen, pale rusty brown on sides of chest and flanks, a stripe of blackish brown down centre of each feather; the sexes and individuals of the same sex also differ greatly in size. A small male in the Dobroyde Collection measures:—total length 16·5 inches; bill, from forehead, along the culmen, 1·4, from cere, along culmen, 1·2, from cere to tip 1·1; wing 13, tail 7·8, tarsus 2·3. A female in the Australian Museum, total length 22 inches, wing 15·85, tail 9·8, bill 1·4, culmen 1·7, tarsus 2·8.

3. *POLIOAETUS LEUCOGASTER*.

Plentiful everywhere along the coast. I have noticed them seize Plover and *Porphyrio* as they rose from the swamps.

4. *HALIASTUR LEUCOSTERNUS*.

Very common all along the coast, they venture as far south as the Clarence river, where they are considered rare, and extend northwards to Cape York and coast of New Guinea. Eggs 2 in number, dirty white, sparingly blotched with reddish brown, length 2·1 by 1·65 inch.

5. *HALIASTUR SPHENURUS*.

A species with great range of habitat; it frequently ascends river-districts into the interior, and it is to be found on many of the lakes inland.

6. *PANDION LEUCOCEPHALUS*.

By no means rare, but not often procurable; it ranges as far south as the Clarence river. I have specimens of the eggs of this species taken from a nest of sticks built in a Eucalyptus overhanging the Brisbane river; they are 2 in number, 2·5 inches long by 1·65 in breadth, of a dirty white, strongly blotched with deep rust-red spots and markings, with a few blotches of slaty blue—a very handsome egg.

* Where no references are given, the names are taken from Gould's 'Hand-book.'

7. *FALCO HYPOLEUCUS*.

This exceedingly scarce bird was met with by Inspector Robert Johnstone, Esq., of the Herbert river, on the tablelands due west of Cardwell, and on the ranges thereabouts; J. B. White, Esq., of Springsure, due west inland from Rockhampton, likewise noticed it, and was fortunate enough to obtain several specimens. The young differ slightly from the adults, and, like others of the tribe, are occasionally mottled with brown on leaving the nest.

8. *FALCO LUNULATUS*.

One female, shot on Herbert river, belongs to the large light-coloured variety of this species.

9. *FALCO SUBNIGER*.

I am indebted to J. B. White, Esq., of Springsure, for much information respecting our Australian Falconidæ and for a specimen of the present species, procured by that gentleman in the Barkoo district. Mr. R. Johnstone also noticed it on the tablelands inland, about 40 miles from Cardwell, and on the Sea-view range.

10. *LEUCOSPIZA NOVÆ-HOLLANDIÆ*.

Not a common species; only two or three specimens obtained; they are larger than our New-South-Wales birds, and barred with longitudinal blotches of dull brown on the breast and flanks; the backs of all were brown. Sex uncertain. No purely white birds seen.

11. *ASTUR APPROXIMANS*.

Adults and young obtained. This species seems more plentiful than the *Accipiter*.

12. *ACCIPITER TORQUATUS*.

Several observed on the margins of the scrubs; only one shot (male).

13. *ELANUS AXILLARIS*.

Apparently scarce; only shot one specimen.

14. *MILVUS ISURUS*.

I met with this rare species only on one occasion; there is a fine specimen in the Australian Museum, shot by Mr. Masters on the Burnet river, Queensland.

15. *MILVUS AFFINIS*.

Common everywhere at times, and found chiefly on the open grass-lands in the neighbourhood of the Herbert and Mackay rivers.

16. *BAZA SUBCRISTATA*.

Usually found in pairs about the margins of the scrubs and bushes. It is a harmless, inoffensive species, feeding chiefly on insects and their larvæ, or occasionally on dead animals.

17. *CIRCUS ASSIMILIS*.

Occasionally met with on the open grass-lands of the Herbert river. Mr. White obtained five examples inland from Rockhampton, at Springsure, and on the Barkoo river.

18. *CIRCUS GOULDI*.

Plentiful enough at times ; they often assemble in small flocks, and may be seen skimming over the open grass-beds and seizing the Quail and other small birds as they rise. If no Hawks are to be seen, a good method to obtain specimens is to set fire to the grass, when several species will soon arrive, and some may be seen dashing almost into the flames after the birds as they rise.

19. *STRIX TENEBRICOSSA*.

Very rare ; only one specimen, obtained in the bushes near Dalrymple's Gap.

20. *STRIX NOVÆ-HOLLANDIÆ*.

This species is now plentiful in the bushes of the coast-range. I noticed in Mr. J. B. White's collection, obtained at Springsure, a very dark-faced variety ; the facial disk was of a deep chestnut ; another shot at Dalrymple's Gap on the coast-range has the disk almost white, and large spots on the under surface. It is a very variable species.

21. *STRIX DELICATULA*.

I examined one specimen shot near the township of Cardwell ; it does not appear to differ from the usual New-South-Wales form of this species.

22. *SPILOGLAUX BOOBOOK*.

One specimen, shot by my collector near Cardwell, is slightly larger than the ordinary birds of the same species found in New South Wales. Colouring the same.

23. *HIERACOGLAUX CONNIVENS*.

This species seems to be more plentiful than *Spiloglaux boobook* ; neither are they by any means rare.

24. *PODARGUS*, sp.

I have again to observe that two species, quite distinct from one another in the form of the bill as well as in colour, have been procured ; these are also distinct from those obtained by my late collector, Spalding, in the same district several years ago. The species of this genus are in such glorious confusion that it is almost impossible to recognize any of them from bare descriptions.

The two I have lately acquired are certainly distinct from any figured in Mr. Gould's work on the Birds of Australia.

25. *PODARGUS PAPUENSIS*.

Very scarce ; one specimen is slightly smaller than those I have obtained from Cape York.

26. *PODARGUS PHALÆNOIDES*.

One specimen only procured ; it is looked on as a very rare bird at Cardwell.

27. *PODARGUS MARMORATUS*.

One specimen only shot, at Salt-water Creek, near Cardwell.

28. *EUROSTOPODUS GUTTATUS*.

Plentiful at times ; several specimens were obtained. They fly low over the clearings and grassy flats for about an hour at dusk. Its single egg is laid on the ground without any preparation for it, usually near some stone or stump on the side of a stony ridge ; the ground-colour is of light-greenish, creamy white, sparingly marked all over with dots and oval spots of blackish and slaty brown, a few appearing as if beneath the surface of the shell. Length 1·38 by 1 inch in breadth, both ends nearly equal.

29. *EUROSTOPODUS ALBOGULARIS*.

I shot several of this species on the Mary river, but only obtained one specimen from the Cardwell district. The egg resembles that of *E. guttatus*, without the greenish tinge on the ground-colour, which is of a rich, light cream-colour, spotted sparingly all over with round dots and oval-shaped marks of black, blackish brown, and slaty black, which latter appear beneath the surface of the shell ; length from 1·41 to 1·5 inch, breadth from 1·03 to 1·03, equal at both ends.

I found this species breeding both at Brisbane and on the Mary river. My brother, James Ramsay, Esq., of Nanama, forwarded to me authentic eggs from the Merule in the Riverina district of New South Wales.

I take the present opportunity of correcting a mistake respecting the egg of this species that I described as such in the list of birds from Port Denison (P. Z. S. 1875, p. 113) ; it evidently belonged to the following bird (*Caprimulgus macrurus*). Rainbird, who was not aware of the generic difference between the two birds, sent me a *Eurostopodus* instead of a *Caprimulgus*, the great similarity in the plumage of these two Australian species evidently misled him.

30. *CAPRIMULGUS MACRURUS*.

This species is plentiful near Cardwell ; many specimens were procured. I am indebted to Inspector Robert Johnstone for a fine pair of their eggs ; they were found on the ground on the side of a ridge near the Herbert river, and are of a light rich cream-colour, fading to whitish after being emptied, clouded all over with fleecy markings of pale slaty lilac, which appear beneath the surface of the shell ; length 1·1 by ·81 inch in breadth.

31. *CHÆTURA CAUDACUTA*.

Met with on the plains inland and flying over the extensive grass beds on the lower Herbert.

32. *CYPSELUS TERRÆ-REGINÆ*, Ramsay, P. Z. S. 1874, p. 601.

I met with this interesting species upon several occasions. Their flight is remarkably swift, and resembles that of the Spine-tailed Swallow (*C. caudacuta*); their actions are also similar. Very difficult to procure.

33. *HIRUNDO FRONTALIS*.

This species seems to visit all parts of Australia; I noticed no difference between the individuals from the Herbert river and those in New South Wales.

34. *LAGENOPLASTES ARIEL*.35. *HYLOCHELIDON NIGRICANS*.

I found both species assembled together in large numbers at Upper Herbert in April; they were evidently preparing for migration.

36. *MEROPS ORNATUS*.

Common everywhere during April in immense numbers, adults and the young of the year evidently preparing for their annual migration.

37. *EURYSTOMUS PACIFICUS*.

Plentiful about the township of Cardwell and elsewhere.

38. *DACELO GIGAS*.

Not so common as the next species; only two or three pairs noticed. Their different note at once distinguishes them even at a great distance.

39. *DACELO LEACHII*.

Plentiful and easily procured when *not* wanted! The furthest south I have noticed this species was about the Mary and Burnet rivers; but I have received specimens said to have been shot at Toowoomba, some distance inland from Brisbane.

40. *TODIRAMPHUS SANCTUS*.

This species was not plentiful; a few specimens shot, but unfortunately in the moult, were slightly smaller than the New-South-Wales birds.

41. *TODIRAMPHUS PYRRHOPYGIUS*.

I give this species on the authority of Inspector R. Johnstone, who observed it about 50 miles inland from the coast; it has a very extensive range of habitat. In December 1869 it visited Dobroyde, near Sydney.

42. *TODIRAMPHUS SORDIDUS*.

This species is by no means rare; but usually inhabits the mangrove-swamps and margins of the rivers near the mouth, where they are not easily obtained.

43. CYANALCYON MACLEAYI.

I seldom found this species on the river-banks. Inland it is plentiful, being the most common species. They excavate a hole in a nest of the White Ant (*Termes*), and, enlarging it into a chamber near the end, lay 4 or 5 round glossy white eggs, slightly smaller than those of *Halcyon sanctus*.

44. ALCYONE PULCHRA.

This appears to me to be only a northern variety of *Alcyone azurea*. It is common on all the creeks and rivers.

45. ALCYONE PUSILLA.

By no means rare, but seldom found away from the creeks in the very densest parts of the scrubs; it is always difficult to procure. Its note is a shrill, weak, piping cry, emitted chiefly while on the wing. Several specimens obtained. There is no difference in the plumage of the sexes.

46. TANYSIPTERA SYLVIA.

This lovely bird, I noticed, inhabited the most dense parts of the scrubs; I never saw the birds in any of the open parts; except diving across from one side of a gully to the other, they always keep to the low Palms and are more frequently heard than seen; their note is a shrill cricket-like chirrup.

47. GYMNORHINA TIBICEN.

By no means common; I regret I did not shoot some specimens; they appeared much smaller than our New-South-Wales birds, although their flute-like note is identical. Met with in the open forest-country.

48. CRACTICUS NIGROGULARIS.

49. CRACTICUS TORQUATUS.

I did not observe any difference in these and individuals of the same species from New South Wales.

50. CRACTICUS QUOYII.

This handsome species differs in its habits from all the other members of the genus. It frequents the mangrove-swamps and dense bushes about the rivers, where its presence is every now and then betrayed by its loud ringing note, emitted chiefly when on the move. For the most part it resorts to the tops of the trees, and feeds on various insects of several families.

51. GRAUCALUS MELANOPS.

Common, frequenting the open country.

52. GRAUCALUS MENTALIS.

Usually seen in pairs or small troops of 4 or 5 in number, frequently on margins of scrubs &c. or in the open forest-country.

53. *GRAUCALUS HYPOLEUCUS*.54. *GRAUCALUS SWAINSONI*.

Both species seem plentiful and confined to the scrubs and bushes.

55. *ARTAMUS SORDIDUS*.56. *ARTAMUS LEUCOPYGIALIS*.57. *ARTAMUS CINEREUS*.

All plentiful after the breeding-season ; they move about in troops, sometimes all three species together, sometimes separately and visiting certain localities alternately. The young of *A. cinereus* are striated with whitish on the head and back, like the young of other members of the genus.

58. *ARTAMUS MINOR* (Vieill.).

My collector obtained several of this species from a troop visiting Salt-water Creek, near Cardwell ; they frequented the open parts of the forest-lands and paddocks in the vicinity. I have met with them as far south as the Mary river. There is no difference in the plumage of the sexes.

59. *PARDALOTUS MELANOCEPHALUS*.

Perhaps the most common species. It resorts to the topmost leafy twigs, where it secures its food of insects and their larvæ. The nest is at the end of a long narrow burrow in the side of a bank, where a chamber is hollowed out and lined with narrow strips of bark or grasses for the reception of the eggs, which are 4 in number, snow-white, and a little larger than those of *P. punctatus*.

60. *PARDALOTUS PUNCTATUS*.

This seems a rare species, and was only met with once. *P. affinis* and *P. striatus* were not obtained within 100 miles of Cardwell, and have consequently been omitted from this list ; I have no doubt, however, that they will eventually be found in the Rockingham Bay district.

61. *STREPERA ANAPHONENSIS*.

I met with this easily recognized species upon several occasions in the open forest-country about the head-waters of the Herbert.

62. *CAMPEPHAGA KARU*.63. *CAMPEPHAGA JARDINII*.

Both species commonly found among the leafy boughs of trees on the margins of scrubs.

64. *PACHYCEPHALA RUFIVENTRIS*.65. *PACHYCEPHALA MELANURA*.

I did not find either of these species plentiful, and only obtained one of each.

66. *COLLURICINCLA PARVULA*.

I noticed that individuals of this species are much more highly coloured and deeper in tint than those I obtained from the Richmond and Clarence rivers in New South Wales. It is one of the most common birds on the Herbert river, and has a very pleasing and varied note, imitating and mocking almost every bird it hears. It is lively and graceful in all its actions, the first up in the morning and the last to roost at night; the scrubs resound with its pleasing song. The nest is composed of shreds of bark, grasses, and skeletons of leaves, &c.; it is cup-shaped, similar but smaller than that of *C. harmonica*. The eggs, 4 in number, white, with black and slaty-brown dots and spots.

67. *OREOICA GUTTURALIS*.

Found only in the open forest-land about 25 miles inland.

68. *CHIBIA BRACTEATA*.

A very common species; I frequently observed them taking their food on the wing at dusk. They appear always to be noisy and pugnacious.

69. *RHIPIDURA ALBISCAPA*.70. *RHIPIDURA RUFIFRONS*.

These species were only met with on one or two occasions in the bushes on the Herbert river; they appear to be rare in these parts.

71. *RHIPIDURA ISURA*.

Not finding any notice of the superciliary stripe in Mr. Gould's description of this bird, I was induced to consider it distinct, and described it under the name of *R. superciliosa* in P. Z. S. 1874, p. 604. Since, however, having had access to the folio edition of Mr. Gould's work, I find they are identical. This species has more of the habits of *Sauloprocta motacilloides*. It frequents the open parts of the forest and margins of the scrubs.

72. *SAULOPROCTA MOTACILLOIDES*.

Common everywhere on the margins of scrubs near dwellings and on the open plain.

73. *SEISURA INQUIETA*.

Not plentiful, met with occasionally.

74. *PIEZORHYNCHUS NITIDUS*.

Plentifully distributed over the whole district; frequents mangroves and thick brushes on the margins of creeks and rivers. A very pleasing and active bird.

75. *ARSES KAUPII*.

On a better acquaintance with this species, I find its habits closely

resemble those of *Rhipidura albiscapa*, especially in spreading its tail, creeping and hopping, with its wings half open, about on the trunks of the trees, often head downwards, searching under leaves and loose bark for insects, or darting out here and there to capture one on the wing. Its actions are lively and pleasing in the extreme; and when close by, the blue ring round the eye is plainly visible and conspicuous. This species is not rare, but seems to frequent the same parts of the dense scrubs throughout the whole season. I noticed several pairs in the Herbert-river brushes, and frequently returned to the same place day after day to watch them and wait for Casuaries; at such times I had ample opportunities of studying the habits and actions of many other species, which would frequently come within a few feet of me, and in more than one instance perched on my hat.

76. MYIAGRA PLUMBEA.

I shot a few specimens in the hopes of finding *M. latirostris*, but did not find them differ from the New-South-Wales specimens.

77. MYIAGRA NITIDA.

Like the preceding species, I found this bird plentiful in the dense brushes and scrubs on the Herbert river and other parts of the district.

78. MACHÆRIRHYNCHUS FLAVIVENTER.

I was delighted to find this pretty species, and secured some fine skins just in time, as they had just finished breeding, and in a few days afterwards I found them moulting, January 1874.

79. MICRÆCA FASCINANS?

On one occasion only I met with a bird which I believe to be of this species; having more important birds in view, did not secure any specimens.

80. MICRÆCA FLAVIGASTER.

This bird is not plentiful, and was only found after several weeks' diligent search. Inhabits the tops of the trees in the open grass-lands. I never heard it singing as its representative *M. fascinans* is wont to do in New South Wales; and only on one occasion did I find them near any of the settlers' residences. They moulted earlier than any other birds in the district, being found in full new plumage on April 28, 1874.

81. MONARCHA CARINATA.

Common in dense scrubs. It builds a neat nest among upright twigs, round, open above, composed of grasses and fine shreds of bark, the outside completely covered with bright green moss (*Hypnum dendroides* &c.). The eggs, two or three in number, are white, thickly sprinkled with light reddish chestnut or reddish brown spots and dots.

82. *MONARCHA TRIVIRGATA*.

One of the most common scrub birds. Its actions are more animated than those of *M. carinata*; it constructs the same kind of nests, in similar places, and of the same materials; also lays eggs two or three in number, of the same colour and markings, only differing a little in size.

83. *GERYGONE ALBOGULARIS*.

This species just arrived in time, before I left the Herbert, to be entered in the list; their arrival was announced by their pretty, melodious song, about the end of April. They arrive to breed with us in New South Wales in September or late August. If I remember right, their nest and eggs I have fully described previously,

84. *GERYGONE CULICIVORA*?

This is either *G. culicivora* or a new species. It is found common among the dense belts of mangroves near Cardwell; we found several of its nests containing eggs and young birds on Feb. 26, when my young friend Master I. Sheridan, an enthusiastic young naturalist, kindly waded nearly up to his thighs in black mud to secure them for me; one nest contained the eggs of a Cuckoo, exactly the same as that of *Chrysococcyx plagosus*, but smaller than any eggs of that bird I have hitherto met with; it is probably the egg of *C. minutillus*. The nest is a somewhat bulky structure, and resembles closely a lump of débris left by the floods hanging to the end of some leafy twig, it is composed of shreds of bark, dried water-weeds, and withered grasses, selected, I have no doubt, from the débris of the floods, plentiful on every side. It is oval oblong, with a small side entrance, and suspended by the top to the end of some hanging branch, often a considerable distance from the shore. The eggs are white, with a few dots of brown at the larger end; some altogether white, without any markings.

85. *GERYGONE*, sp. inc.

One of the most common species, always to be found in the dense scrubs by its pleasing twittering note. The birds were in full moult when shot. A *very indistinct* dark bar across tip of the tail, otherwise like *G. albogularis*.

86. *ERYTHRODRYAS ROSEA*.

One pair noticed on the margin of a dense scrub; although frequently watched for hours, no nest was discovered.

87. *PETROICA MULTICOLOR*.88. *MELANODRYAS CUCULLATA*.

Both species appear to be residents; they are not plentiful, but met with on several occasions in the open forest-lands, and near the homesteads of the settlers.

89. *PÆCILODRYAS SUPERCILIOSA*.

Found frequenting the outskirts of scrubs and thinly wooded banks of the rivers.

90. *PÆCILODRYAS? CINEREIFRONS*, sp. nov.

Head dark ashy grey, slightly tinged with olive on the crown; a broad ashy-grey band extends from over the eye to the back of the head; lores and chin blackish brown; throat and a short broad line extending just under the eye white; ear-coverts, nape, interscapular region, mantle, and rump olive-brown; the upper tail-coverts and tail olive, washed with rufous; inner webs of the tail-feathers dark ashy brown, the outer three feathers on either side margined with a well-defined line of white at the tips; under surface of the tail dark ashy brown; under tail-coverts and flanks rich buff; abdomen white; breast and chest ashy grey, becoming white on the throat; sides tinged with olive-brown; under surface of the wings dark ashy brown, having a white band crossing the wing near the base of the primaries and secondaries; under wing-coverts dark ashy brown, a spot of white at the base of the spurious wing; under surface of the shoulder white, the upper surface of the shoulder ashy grey; the wing-coverts above and the concealed portions of primaries and secondaries blackish brown; the scapulars and terminal half of the outer web of primaries and secondaries olive; the basal portion blackish brown, having a broad white band extending through them across the wing, just in front of the greater wing-coverts, and being broader on the secondaries nearest the body, but not extending on to the scapulars. Bill black at the base, white at the tip and along the under margin of lower mandible; legs, feet, and nails flesh-colour.

Total length 5·7 inches; bill from forehead ·8, from nostril ·45, from angle of the mouth ·9, height at the nostrils ·25, width ·2; wing 3·9 inches; tail 2·9; tarsus 1·2; hind toe ·5, its claw ·3; middle toe ·65, its claw ·25; outer toe ·55, its claw ·2; inner toe ·45, its claw ·2.

Hab. Brushes of the coast range near Cardwell, Rockingham Bay.

Remarks.—In habits and actions this species closely resembles the *Eopsaltria*, and like them may be seen perching frequently on the side of the upright stems of the trees.

91. *EOPSALTRIA CAPITO*.

Plentiful in the dense parts of the brushes. Their habits resemble *E. australis* of New South Wales.

92. *EOPSALTRIA INORNATA*, Ramsay, P. Z. S. 1874, p. 604.

In habits it resembles the preceding, but is either very rare or easily overlooked. It has been found in the scrubs on the Endeavour river.

93. *PSOPHODES CREPITANS*.

The specimens shot of this species were a trifle smaller than those from New South Wales. The nest is a rather bulky structure, com-

posed of rootlets, and skeletons of leaves and ferns, &c., lined with finer material, and sometimes, I am told, with feathers; it is not unlike a very large-sized nest of *Sericornis frontalis*, or a bulky nest of *Malurus cyaneus*, it is dome-shaped, with a comparatively large opening in the side, and placed in low bushes surrounded by vines &c. The eggs are three to four in number, of a greenish-white colour, with blackish, irregular, linear-shaped markings, some twisted and looped; a few on the larger end, where they are most numerous, are of a slaty blue, and appear beneath the surface of the shell; on the thicker end of some, hair-lines of black predominate, and, crossing and looping over one another, form here and there a black blotch. Length 1.1 to 1.2 inch, by 0.8 to 0.85.

94. *MALURUS CYANEUS*.

I met with this species at Port Dennison, but not further north if I remember rightly.

95. *MALURUS AMABILIS*.

96. *MALURUS HYPOLEUCUS*, Gould, Suppl. B. A. pl. 22.

These birds, whether they be of the same species or not, were found together on the open grass-lands in the neighbourhood of Cardwell, in the vicinity of scrubs. It has not by any means been proved that they are male and female of the same species, as I find *neither Cockerell nor Thorpe*, during their trip at Cape York, ascertained the sexes of the birds they shot, *by dissection*: I have made particular inquiries of Mr. Thorpe on this point; and I regret to say my collector at Rockingham Bay, when he skinned my specimens, made the same mistake, and went solely by the plumage; in the same locality were shot specimens of *M. lamberti*. It is not improbable that Mr. Gould's *Malurus hypoleucus* is quite a distinct species, or perhaps the young male of *M. amabilis*; but from the shape of the bill &c. I am at present inclined to believe it to be a distinct species; the fact that they associate together in troops proves nothing on this point.

97. *MALURUS LAMBERTI*.

I think Rockingham Bay must be the most northern limit of this species. The New South Wales birds differ in the tint of colouring from those from South Australia, being of a more verditer blue on the head, and of a lighter tint on the back.

98. *MALURUS MELANOCEPHALUS*.

Common everywhere from the Clarence river in New South Wales to Cape York.

99. *CISTICOLA RUFICEPS*.

This species is plentifully dispersed over the grass beds; it is common near Sydney, and equally plentiful at Cape York. The nest is a very neat, dome-shaped structure, chiefly composed of fine grasses, thistle-down, and cobweb, or the flowering portions of

grasses all matted closely and thickly together, and having the adjacent leaves of the plant in which it is placed neatly sewed on to the side of the nest; sometimes two or three broad leaves are sewed together with cobweb, and the nest made between them. The eggs are about the size of those of *Sericornis brevirostris*, of a delicate blue, spotted rather largely with reddish brown; they are three in number. The nest is always placed near the ground where the grass growing through some broad-leaved plant affords it concealment.

100. *SERICORNIS CITREOGULARIS*.

101. *SERICORNIS MAGNIROSTRIS*.

Both species plentiful in the dense scrubs; their large pendent nests hang like masses of moss-grown debris from almost every tree in certain parts.

102. *GEOBASILEUS CHRYSORRHŒUS*.

I met with this species about 50 miles inland from Cardwell. There were also several *Acanthizæ* twittering in the scrub close by; but I had no opportunity of determining the species.

103. *ANTHUS AUSTRALIS*.

Always abundant in similar situations to those it frequents in New South Wales.

104. *SPHENÆACUS GALACTOTES*.

This species is one of the most common grass-birds; universally dispersed over the whole of Queensland.

105. *CALAMOHERPE AUSTRALIS*.

Found only on one occasion in tall reeds while we were shooting wild Geese (*Anseranas melanoleucus*); the note being exactly the same as that of the New-South-Wales bird, I presume it was the same species. Did not shoot any specimens.

105*. *MIRAFRA HORSFIELDII*.

I found this species frequenting the dry parts of the grass beds all over the district of the Herbert river.

106. *ÆGINTHA TEMPORALIS*.

This species appears to be very rare about Cardwell. I met with only one small troop at Dalrymple's Gap, on the road to the Lower Herbert river.

107. *NEOCHMIA PHAËTON*.

The most common species from Rockhampton north to Cardwell.

108. *DONACOLA CASTANEOTHORAX*.

This and the preceding two species are the only ones I met with near

Cardwell. *Poephila gouldiæ* was described to me very correctly, and said to have been met with on the tablelands about 30 miles from Waterview; I did not find any specimens myself.

109. *PITTA STREPITANS*, var. *SIMILLIMA*.

This northern variety of *Pitta strepitans* I found common enough at the Herbert river and scrubs around Cardwell. Some of the specimens are deeper-coloured and smaller even than any I have seen from Cape York; others, again, are not to be distinguished from the New-South-Wales birds; the white spot on the wing is almost obsolete in many from the ranges near Cardwell. Their notes are exactly the same in all localities. The nest and eggs are the same, and are found to vary in the same way as those described and figured by me in 'The Ibis,' 1867, p. 417. In size they are slightly smaller. I believe the finely spotted variety of the eggs of this species, taken at Cape York by Cockerell and Thorpe, was at the time mistaken for the eggs of *Pitta mackloti*—which is very probable. One thing is certain, I never knew a nest of either *Pitta strepitans* or *P. simillima* to contain more than *three eggs alike*; and most often two out of the four (*the number invariably laid for a sitting*) have been of the finely spotted and light-coloured variety, the other two strongly and deeply marked, as figured in 'The Ibis,' 1867, p. 417.

110. *OREOCINCLA LUNULATA*.

I only once met with this species, in the scrubs on rocky sides of the coast-range; the eggs elongate, greenish, spotted with reddish brown, four in number.

111. *ÆLURÆDUS MACULOSUS*, Ramsay, P. Z. S. 1874, p. 601.

This interesting species appears to take the place of the *Æ. smithii* of New South Wales. We found it feeding on the fruit of the native figs, in small families of four to eight in number. The note is more of a *whistle* than a *cry* of any kind.

112. *SCENOPÆUS DENTIROSTRIS*, gen. et sp. nov.

The whole of the upper surface, wings, and tail rich olive-brown, the inner webs of the primaries and secondaries blackish brown, their margins near the base buffy white; under surface of the shoulders yellowish buff, with remains of broken bars of blackish brown on the smaller feathers; the under wing-coverts yellowish buff, with cross bars of dull brown; under primary-coverts buff, crossed more distinctly with dull brown; under surface of primaries and secondaries dark ashy brown, the basal half of the inner margin buff tinged with a faint wash of light rufous, flanks olive-buff; abdomen buff; under tail-coverts olive-buff, each feather barred with two or more lanceolate marks of dull olive-brown, under surface of the tail dull brown; throat, neck below, chest, and the rest of the under surface buffy white, each feather margined with olive-brown, which becomes lighter and less distinct on the lower parts, and almost obsolete on the flanks

and abdomen; on the throat and chest the margins are almost black, and tinged with yellowish olive on the sides of the neck and chest, and the buff central portion of a deeper tint; the under surface has the appearance of being broadly streaked with lanceolate marks of buff, which become more and more indistinct as they approach the under tail-coverts, becoming obsolete on the abdomen.

Total length 11 inches; wing 5·7; tail 4; tibia 2·2; tarsus 1·2; hind toe 0·6, its claw 0·4, its width 0·25; inner toe 0·65, its claw 0·3; middle toe 0·9, its claw 0·35; outer toe 0·7, its claw 0·3; width of the sole of the foot 0·35; bill from gape 1·2, from forehead 1·1, from the nostril 0·6, height at nostril 0·6, width at nostril 0·5, culmen 1·1; upper mandible black, lighter at the tip; lower mandible blackish brown; gape yellow; legs and feet black, claws brown.

Note.—The cheeks and sides of the face and the ear-coverts have a rufous tinge, which may be from blood-stains; the greater portion of the breast and abdomen having been shot away, it is almost impossible to describe these parts accurately. The only specimens procured were shot by Inspector Johnstone, of Cardwell, with his rifle, and were consequently much damaged.

Hab. Bellenden-Ker range and the dense brushes clothing the steep sides of "Sea-view range" on the north-east coast of Queensland.

This species is not as yet known to build a bower; but like the Catbirds it clears a large space under the brushwood some 9 or 10 feet in diameter, and ornaments the cleared part with tufts and little heaps of gaily tinted leaves and young shoots.

This bird, which cannot be placed in any of the known genera of the family of Bower-birds, nevertheless approaches *Æluroedus*; it differs, however, from that genus in the following particulars:—The head itself is more elongated, the forehead flattish, broad, sloping very gradually from the bill, which is short and thick, much swollen at the sides; culmen much curved to the tip, which is blunt and strongly toothed; the inner margin also is toothed, having three distinct indentations (*hidden by the outer margin*) for the teeth of the lower mandible to fit into; lower mandible with one terminal and two lateral teeth on the margin on either side; nostrils basal, sunk, large, circular; the culmen just over these is compressed laterally; they are not hidden, although the bill is thickly clothed with feathers at the base; a few black short bristles over the nostrils; bill, measuring from its extreme base on the forehead, nearly the full length of the head; wings moderate, quills elongate, narrow, all more or less rounded; the secondaries squarish at the tips, being of a nearly equal breadth throughout; tail short, square, of twelve feathers, nearly all equal in length, the under coverts reaching to about the middle of the tail; tarsi short, about half the length of the tibia*; feet comparatively small, hind toe connected to inner toe at the base by interdigital membrane, its sole broad; outer toe connected to middle toe as far as first joint, toes short; outer and inner

* One tenth of an inch longer than *half* the tibia.

about equal in length, middle toe about one third longer ; hind toe shortest and broadest at base ; claws of all weak, curved, and compressed laterally. The plumage resembles that of the Catbird *Ælurædus*, being loose and comparatively long.

113. *MIMETA AFFINIS*.

114. *MIMETA VIRIDIS*.

115. *MIMETA FLAVOCINCTA*.

The first of these species is the most common ; the two others I did not find to be plentiful.

116. *SPHECOTHERES MAXILLARIS*.

Plentiful everywhere on the margins of the scrubs.

117. *SPHECOTHERES FLAVIVENTRIS*.

I noticed several in a collection of birds made in the district, but did not perceive any specimens myself at Cardwell.

118. *CORCORAX MELANORHAMPHUS*.

Met with once or twice inland in open forest country.

119. *CORVUS AUSTRALIS*.

Common about the slaughtering-yards throughout the district.

120. *CALORNIS METALLICA*.

One of the most common birds in the scrubs of the Herbert river. They breed in companies, seemingly all through the year, making large bulky nests of grass and fine twigs with a side opening, which hang from the ends of the leafy boughs in clusters or singly ; at times the branches break off with the weight of the nests and their contents. On the Herbert I noticed they gave preference to a small-leaved species of fig resembling *Ficus syringifolia* ; and before a colony began to build, the twigs on many of the branches were broken and began to wither, and, hanging down, at a distance resembled in colour the brown nests of this species. I noticed this on two occasions, and remarked to Inspector Johnstone that the birds were building near his camp. However, when examining the tree through our field-glasses, we found nothing but bunches of dry leaves swinging about with the wind. A few days afterwards we noticed a neighbouring fig-tree in a similar condition ; and as both trees were resorted to by these birds, I was under the impression that it was caused by the ravages of some insect which the birds came to feed on ; however, about a month afterwards, Mr. Johnstone informed me that these trees had been taken possession of by colonies of Weaverbirds (or "Starlings," as they are called in those parts) ; and this bulk of brown nests was forming quite a new feature in the landscape.

The surface of the ground under a tree which has been colonized for some time is perfectly green with thousands of seedling plants,

which have sprung from the fruits brought by these birds for their young.

The food of this species is chiefly, if not exclusively, fruit of various kinds, including the seeds of several species of palms, particularly those of *Ptychosperma alexandræ* and *Kentia wendtlundtiana*; but although four species of *Calamus* with edible subacid fruits abound, I never found that these birds fed upon them.

The eggs are from three to four in number, variable in form, some roundish, others elongate, about the size of those of *Sturnus vulgaris*, of a greenish white, with bright reddish brown spots and dots, more numerous at the larger end.

121. POMATOSTOMUS SUPERCILIOSUS.

122. POMATOSTOMUS TEMPORALIS.

I only met with these birds on the western side of the coast-range, in open forest and thinly timbered country.

123. GLYCIPHILA FASCIATA.

This species is plentifully distributed over the coast-country from Port Denison to Cooktown. In habits and actions they resemble *Ptilotis flava* and others.

124. GLYCIPHILA SUBFASCIATA, Ramsay, P. Z. S. 1868, p. 385.

This species, although possessing nothing in its sombre plumage to recommend it, is certainly very interesting on account of its peculiarly shaped nest, being the only one of the Australian Meliphaginæ that I have met with which constructs a dome-shaped nest. It is a neat structure, composed of strips of bark, spiders' webs, and grass, and lined with fine grasses &c. The opening at the side is rather large; but the nest itself is rather deep, being about 4 inches long and $2\frac{1}{2}$ to 3 inches wide. The eggs I did not obtain; but one taken from the oviduct of a bird is 0.75 inch in length and 0.5 in breadth, pure white, with a few dots of black sprinkled over the larger end.

The nests were invariably placed among the drooping branches of a species of *Acacia* always overhanging some creek or running water. All the nests I found were so situated; and my young friend Master I. Sheridan of Cardwell, who has paid considerable attention to objects of natural history, assures me that he has never found them otherwise; and the usual number of eggs for a sitting are two, and frequently without any black dots on the surface.

Their note is a sharp, shrill, monotonous cry, oft repeated at intervals; iris reddish brown.

125. STIGMATOPS SUBOCULARIS.

This species seems plentiful, inhabiting the mangroves and margins of the scrubs on the water's edge. They betake themselves to almost any of the forest trees when they are in bloom, attracted by

the honey and insects. In the neighbourhood of Sydney they frequent the orange-groves, and occasionally breed among the branches during the months of October and November. Their cry is peculiar, but not unpleasant, and at times varied.

126. PTILOTIS LEWINII.

This species is universally dispersed over the whole of the coast-country from the Hunter river to Cooktown. It is particularly fond of extracting honey from the flowers of the plantains and native bananas (*Musa banksii*, Müller). Banana groves abound in the Cardwell district, and may be distinguished at a great distance in large patches clothing the sides of the mountains on the sea-coast; and here this species is one of the most common birds. The nest is like that of *P. chrysops*, cup-shaped, open at the top, slung by the sides or rim between the twigs of some leafy bough or vine; it is composed of shreds of bark and grasses, webs of spiders, &c., and lined with similar material of a finer texture, or occasionally, when found in the neighbourhood of dwellings, with feathers, wool, or other soft substances. The eggs are two in number, pearly white, with deep-reddish dots.

127. PTILOTIS VERSICOLOR.

I only met with one specimen of this bird, which I obtained from Broadbent, who informed me the species was not scarce and usually fed among the blossoms of tall *Eucalypti*.

128. PTILOTIS MACLEAYANA, Ramsay, P. L. S. of N. S. W. pt. i. p. 10 (1875).

This fine species is one I mentioned in the P. Z. S. 1868, p. 386, under the name of *Ptilotis versicolor* of Gould (Handb. B. Austr. i. p. 506); and, strange to say, even the fully adult birds show that peculiarity in the plumage which is usually characteristic of immaturity. At first I considered them all young *P. versicolor*; but after having obtained and examined, from several sources, extending over a period of six years, numerous fine specimens, all in similar plumage, and shot at various times through the year, I felt convinced that they belonged to a distinct species; and on comparing them with Mr. Gould's excellent plates, I have no doubt I am correct.

The species has not a very extensive range, being confined, as far as we yet know, to the coast-range from the Herbert river north to Cooktown on the Endeavour. I found them nowhere plentiful, and always of a shy and retiring disposition. The sexes are alike in plumage.

The only note I heard them utter is a simple feeble cry resembling that of *P. chrysops*, but not so loud; in their actions and retiring disposition they resemble more *P. lewinii*.

129. PTILOTIS FASCIOGULARIS.

I find no mention in my note-book of meeting with this bird at Rockingham Bay; but I found it plentiful on an island off Port

Denison and near Cleveland Bay, about 60 miles due south of Rockingham Bay. They frequent the mangroves, and are to be met with in considerable numbers on many of the islands and mangrove-swamps along the shores of various bays as far south as Moreton Bay. They congregate in considerable numbers, and are very pugnacious at times, fighting among themselves and chattering as the yellow-tufted Honey-eaters (*P. auricomis*) are wont to do. I never met with them away from the margins of the salt water.

130. *PTILOTIS FRENATA*, Ramsay, P. Z. S. 1874, p. 603.

A very distinct and interesting species, procured near the township of Cardwell, feeding among the blossoms of the *Eucalypti*. It appears to be very scarce, only three being observed during our stay of six months.

131. *PTILOTIS FLAVA*.

A very beautiful species, and perhaps the most common bird about Cardwell; frequently seen clinging to the flowers of the bananas and plantains in cultivation round the houses: when among the blossoms of the *Acaciæ* they are scarcely discernible, so closely does their yellow plumage match the tint of the blossoms.

132. *PTILOTIS PENICILLATA*.

133. *PTILOTIS FUSCA*.

I found these species frequenting the margins of creeks and rivers on the Upper Herbert, and about 50 miles inland from the coast. I did not notice them near the Bay.

134. *PTILOTIS CHRYSOPS*.

Common everywhere along the coast.

135. *PTILOTIS FILIGERA*.

This seems to be a scarce species and very local, although dispersed over a wide area. I obtained one only at Rockingham Bay; and one I received from Cape York.

136. *PLECTORHYNCHA LANCEOLATA*.

Although I was not fortunate enough to meet with this fine species myself, I saw some fine specimens which had been procured some 60 miles inland. This species appears to confine itself to the west of the coast-range, and is met with occasionally about the heads of the Burnett river.

137. *MELIPHAGA PHRYGIA*.

Once found in open forest-country near heads of the Upper Herbert river, 50 miles inland.

138. *TROPIDORHYNCHUS CORNICULATUS*.

Universally dispersed over the whole country as far north as Cardwell.

139. *TROPIDORHYNCHUS CITREOGULARIS*.

Equally plentiful with the last mentioned, but confined to the more inland parts and open forest-country. The nest is smaller, but similar in form and shape, and placed in like situations to that chosen by *T. corniculatus*; and like that species it builds its nest of strips of bark, and lines it with grass and finer shreds of bark. It is usually suspended by the brim from a horizontal bough, and frequently overhanging the water. An egg given to me some time ago, and said to belong to this species, is creamy white with blackish dots, in form somewhat elongated.

140. *MYZOMELA SANGUINOLENTA*.

During the months of April and May 1874 this bird was found by no means rare, feeding among the blossoms of *Lophostemon*, *Melaleuca*, and *Eucalyptus* in the neighbourhood of Cardwell and on the Herbert river. They arrive about Sydney during the months of October and November, and, remaining, breed during November, December, and as late as January.

141. *MYZOMELA PECTORALIS*?

One specimen only obtained, which I believe to be the young of this species: should it prove otherwise, it will be hereafter described.

142. *MYZOMELA OBSCURA*.

A very common species about Port Mackay and Port Denison, but did not appear to be so numerous about Cardwell; several specimens obtained. I have seen it as far south as the Mary river, where, however, it is very rare.

143. *ENTOMYZA CYANOTIS*?

While in the open forest-country near the heads of the Herbert river I met with species of *Entomyza* on several occasions, but regret we did not shoot any, having nothing smaller than a revolver in the shape of firearms with us. I am not by any means sure that the species was *E. cyanotis*, and am more inclined to consider it *E. albipennis*.

144. *MELITHREPTUS ALBOGULARIS*.

Common all along the coast-line, and for a considerable distance inland, from Brisbane to Cooktown.

145. *MELITHREPTUS GULARIS*.

This species appears to be plentiful, but not in the immediate vicinity of the coast. It is not rare about Maryborough, and is also found on the Upper Herbert. It has considerable powers of song, which may be heard often at daylight in the morning.

While camped on the banks of the Gregory a pair of these birds frequented a Wattle-tree (*Acacia*) near to our "tent" (a sheet of bark!), and delighted us every morning for many days by pouring

out their varied and pleasing song, which often lasted for ten or fifteen minutes without ceasing. I have since heard their song under more comfortable circumstances; and my brother and I at once recognized our old friends.

The nest and eggs are similar but slightly larger than those of *M. lunulatus*; eggs two in number, pale salmon-pink with deep reddish salmon dots on the larger end; the nest is cup-shaped, slung by the rim between twigs at the end of a leafy bough, and composed of fine grasses and strips of bark webbed together with spider's nests.

146. *DICÆUM HIRUNDINACEUM*.

This species seems dispersed over the whole of Australia; nevertheless it is a bird seldom met with in collections, which may be accounted for by its habit of resorting to the highest trees. I found that both in Queensland and New South Wales they frequent the large clumps of mistletoe and *Loranthus*, of the fruit of which they seem to be particularly fond; at times they enter the gardens and feed on the fruits of the Cape-mulberry (*Morus*, sp.). An *Ehretia hottentotica* at Dobroyde, when its berries are ripe, is a favourite place of resort for this species.

147. *NECTARINIA AUSTRALIS*.

I only met with this interesting species on one occasion near Cardwell; it is by no means common in that district.

148. *ZOSTEROPS CÆRULESCENS*.

The Queensland specimens of this species are frequently smaller than our New-South-Wales birds, and often of a brighter tint on the head and throat, the silver ring round the eye is comparatively larger and more conspicuous.

149. *PTILORHIS PARADISEA*.

The most northerly point that I met with this species was at Port Mackay on the Pioneer river; it was considered there a very rare bird. I have heard of its being occasionally met with in the ranges near Gympie.

This bird is very similar to *Climacteris* in its actions. While encamped for some three or four months in the ranges of the North Richmond river, the great stronghold of this species, I had abundant opportunities of studying its habits, and was struck with the similarity of its actions to our Tree-creepers. The young males and females, seldom accompanied by more than one adult male in livery, are frequently met with together traversing the stems and thick branches of the trees, especially those showing signs or in a state of decay.

The call-note of the adult male is a shrill scream, easily imitated sufficiently to attract its attention and cause it to remain until you approach. By this means I have frequently watched it closely as it hopped round the bole of some decaying tree, or tore off the loose bark in search of insects.

Seldom more than one adult male is found to every quarter of a square mile of scrub; and so little do they wander about, that it was customary for me to return to the same locality day after day until I had shot the bird, being quite sure of hearing him calling if he had not been destroyed in the mean time. These old males are usually solitary; but two or more occasionally meet in some favourite feeding-tree, when a fight is sure to ensue; for, although closely resembling the *Climacteris* in their actions, they differ in this respect, that they may occasionally be found feeding on the fruit of the native tamarind (*Tamarindus australis*).

The natives informed me that the Rifle-bird lays its eggs, which are white, in the hollow branch of a tree without making any nest whatever—which is not improbable.

150. *PTILORHIS VICTORIÆ*.

The great stronghold of this species is the Bernard Islands north-east of Cardwell, a short distance from the coast. It is at times found on Hinchinbrook Islands, seldom on Gould and Dunk Islands, but not unfrequently in the dense scrubs clothing the coast-range near Cardwell. Once only did I meet with it on the Herbert river.

Their note and habits closely resemble those of *P. paradisea*. They were in full moult during the time of my visit, February and March, and did not regain their livery until May.

151. *CLIMACTERIS SCANDENS*.

Not scarce in the open forest-land on the banks of the Upper Herbert river.

152. *CLIMACTERIS LEUCOPHÆA*.

Met with on one or two occasions on the margins of scrubs on the Herbert river &c.

153. *ORTHONYX SPALDINGI*, Ramsay, P. Z. S. 1868, p. 386.

In habits and actions this fine species closely assimilates to *O. spinicauda*, but is far more retiring and shy, much more noisy, and may be heard more frequently than seen. The young attains the adult plumage after the first moult, which takes place about December. They breed in September and October; and I believe the young then hatched moult in February and March, judging from a very fine series of skins I then procured.

This species has the habit of scratching up the dead leaves, and throwing the débris far behind it, after the manner of the "Scrub-hens" (*Megapodius tumulus*). Its powers of mimicry are very great; and, like the Lyre-birds, it seems capable of imitating almost any sound. These birds are not only rare, but at all times very difficult to obtain, and appear to be confined to the thickly timbered scrubs on the steep and rugged sides of the coast-range near Cardwell.

154. *SITTELLA STRIATA*, Gould, Suppl. B. Aust. pl. 54.

I mentioned this species as the young of *S. leucoptera* in P. Z. S.

1868, p. 387, where a mistake in the description occurs, the words *upper surface* should have been *under surface*, as the text will show. It is plentifully distributed over the whole Rockingham-Bay district, and regarded by the aborigines there as sacred and as having had something to do with their first coming to that part of the country. This species seems to be more active than other *Sittellæ* I have met with. They are usually found in small troops, and seem in a hurry; hopping quickly over the trunks, stems, and branches of the trees, oftentimes head downwards, creeping round and round the limbs, stopping only to disengage some insect from the bark; and calling to each other in a mournful monotonous cry, they fly off to repeat the same actions on some other tree. They move along the forest at no mean pace, usually going in a direct line. The nest, like that of *S. chrysoptera*, is placed in an upright and usually dead fork of some high branch; it is made of fine strips of bark with a large quantity of spider's webs, with which small scales of bark resembling that of the branch in which it is placed are felted on so carefully as hardly to be detected even at a comparatively short distance; the rim is very thin, the nest open above and very deep.

155. *SITTELLA LEUCOCEPHALA*.

This very conspicuous species is far from being rare, and is usually met with in open forest country over the whole of northern Queensland as far as Cooktown. Its habits and actions and nidification do not differ materially from those of the other members of the genus. The notes of all closely resemble each other.

156. *CUCULUS CANOROIDES*.

This species was not rare at Cardwell during the months of March to May. I shot several of them in the moult and young plumage. They do not appear to me to differ much from the European *C. canorus*, either in the adult or in *any of the rufous-tinted immature stages of plumage*. I never heard them call. The young have a decidedly strong rufous tint pervading the upper surface.

157. *CACOMANTIS FLABELLIFORMIS*.

158. *CUCULUS*, sp. inc.*

Both species common from September to May; the latter I find identical with a bird received from India.

159. *LAMPROCOCYX PLAGOSUS*.

160. *LAMPROCOCYX MINUTILLUS*.

Of the former, two specimens only were obtained, it does not appear to be very plentiful; of the latter species only one specimen was shot, near Cardwell. I obtained from the nest of a species of *Gerygone* an egg resembling that of *L. plagosus*, but much smaller, which, it is very probable, is that of *L. minutillus*.

* I can find no description of this bird in any work.

161. *SCYTHROPS NOVÆ-HOLLANDIÆ*.162. *EUDYNAMIS FLINDERSI*.163. *CENTROPUS PHASIANUS*.

These species are all common enough throughout the whole district, the *Scythrops* usually met with flying about the tops of high trees in companies of five to eight in number; they have a loud harsh guttural croak, which is most usually heard early in the morning. The *Eudynamis* frequents fruit-bearing trees of every description, and feeds on numerous species of berries found in the scrubs, occasionally visiting gardens in the neighbourhood of the settlements for a like purpose. The Swamp-Pheasant, or Cookoo, as it is usually called (*Centropus phasianus*), is very numerous and may be always found frequenting the extensive grass-beds throughout the Colony. These birds prey on mice and small animals, holding them with their feet, and tearing them to pieces if they are too large. I once had a pair of *Centropus* in confinement; and although scarcely nine months old, they readily killed mice or young rats when let go in their cage: first picking them up quickly in their bill and rapping them smartly against the sides of the cage, they soon killed them; but often a peck on the back with their strong bills killed or disabled the animal at once. They eat raw meat, grasshoppers (*Locusta*), lizards, frogs, or bread readily; they appeared to be omnivorous, and became very tame in a short time.

164. *CACATUA GALERITA*.

This bird seems universally dispersed over the whole of Australia; and they are not one whit the less mischievous in the Cardwell district than any other. I found that they frequent the palm trees when the seeds are ripening; and there perched on the fruiting stems they amused themselves biting off the strings of red or green berries, and watching them as they fell to the ground. I have noticed them in New South Wales treating some of the flowering *Eucalypti* in the same way, and have frequently seen large trees with scarcely a bough untouched, and the whole ground underneath strewn with the leaves and branches. They seldom eat either the blossoms or the capsules of the *Eucalypti*, although they do feed on the palm- (*Ptychosperma alexandræ*) berries, and afterwards begin their work of destruction.

-165. *CALYPTORHYNCHUS BANKSII*.

Not plentiful, one troop of five only met with on the Herbert river.

166. *CALYPTORHYNCHUS LEACHII*.167. *CALYPTORHYNCHUS FUNEREUS*.

These seem to be the usual, but not common, species found about the Herbert river and Cardwell. I met them on two or three occasions, but found them very shy.

168. *PTISTES ERYTHROPTERUS*.

I found this species dispersed over the whole region from the Clarence river to the Cardwell district. Specimens of this species are smaller in size the further north they are found, until it reaches Cooktown and the Cape-York district, where they are the smallest, and the crimson on the shoulders of a deeper tint.

169. *PLATYCERCUS CYANOGENYS*.

Only once met with ; this species appears to be very rare in the Cardwell district, although I have seen several specimens from Cape York.

I found Parrots of all kinds very scarce, and especially the ground-Parrakeets and their allies. I did not meet with a single species of *Euphema* or *Psephotus*.

170. *TRICHOGLOSSUS MULTICOLOR*.171. *GLOSSOPSITTA PUSILLA*.172. *GLOSSOPSITTA AUSTRALIS*.

All three species very plentiful, and frequently met with feeding in the flowering *Eucalypti*.

I searched diligently for *T. rubritorquis*, but found no trace of it.

173. *CYCLOPSITTA MACLEAYANA*, Ramsay, Sydney Morning Herald Newspaper, Nov. 15, 1874.

This interesting and prettily marked species was discovered first by Mr. K. Broadbent near Cardwell, and found feeding on the native figs with which the scrubs abound. The specimens in the Dobroyde Collection are the only fully adult specimens obtained. I believe I forwarded to the Society a full description of the adults, male and female, and the young, several months ago*. In case I should not have done so, I enclose a slip from the 'Sydney Morning Herald,' in which a portion of my notes appeared about the same time.

Male. Upper surface bright grass-green; forehead crimson bounded by a band of bright verditer blue, which extends through the lores, and, narrowing round the eye, reaches to the ear-coverts; from the base of the lower mandible, extending over the ear-coverts, an oblong patch of crimson, bounded below by a patch of deep blue; outer webs of primaries and secondaries deep blue; inner webs blackish brown; shoulders tinged with blue, under surface of the shoulders bright green, having a narrow band of yellow, formed by a series of spots of the larger under wing-coverts; across the centre of the wing a larger band of yellow, formed by a series of elongated marks on all but the second and third primaries; a longitudinal spot of red on the inner webs of the third and fourth tertiaries nearest the body; the remainder of the wings on the under surface blackish brown; whole of the under surface of the body bright

* [This description was never received. The species appears to be the same as *C. maccayi*, Gould, P. Z. S. 1875, p. 314, and Birds of New Guinea, pt. i. pl. 10.—P. L. S.]

green; on the sides of the breast, from under the wing, extending nearly to the flanks, is an oblong patch of bright yellow; under tail-coverts and flanks bright green, tipped with verditer; bill, tarsi, and feet dark-horn colour. Total length 5 inches, wings from flexure $3\frac{3}{16}$, tarsi $\frac{7}{16}$, tail $1\frac{1}{2}$; bill from cere along the culmen $\frac{9}{16}$, width at base $\frac{1}{2}$.

Female. The female differs in having the whole of the sides of the face, from the base of the upper mandible to the ear-coverts, of a bright verditer blue; the outer and lower portions of the ear-coverts deep cobalt blue, and in having no trace of red on these parts. The spot on forehead just in front of the cere is of a duller and more of an orange-red than in the male; the breast and abdomen have a slight tinge of yellowish green.

Hab. Scrubs on coast-range near Cardwell, Rockingham Bay, Queensland.

Young. In the not quite adult birds the breast and under surface of the body is of a paler green, and has a decided yellow tinge. The cheeks are of a paler blue, and void of the red patch so conspicuous in the adult male. Bill pale horn-colour, darker at the tip.

Remarks. This very prettily marked species is the second of the genus *Cyclopsitta* now known to inhabit Australia; it is closely allied, although quite distinct from *C. coxeni*, Gould, being much smaller and more beautifully and distinctly marked about the face and head. The specimens now gracing the collection of William Macleay, Esq., M.L.A., of Elizabeth Bay, Sydney, those in the Australian Museum, and in the Dobroyde-Museum collection, from which the above descriptions have been jointly taken, were procured by Mr. K. Broadbent, taxidermist, during a collecting-tour in the neighbourhood of Cardwell. They were found feeding on the fruit of the native fig-trees, which abound in the dense scrubs and brushes clothing the margins of creeks and rivers at the foot of the coast-range. It is doubtless the northern representative of *Cyclopsitta coxeni*, which, I believe, has not been met with north of the Brisbane district.

3. Description of the Eggs and Young of *Rallina tricolor*, from Rockingham Bay, Queensland. By EDWARD P. RAMSAY, C.M.Z.S.

[Received August 24, 1875.]

I found this fine species of Rail by no means rare in the dense scrubs which fringe the rivers and creeks of the coast range near Rockingham Bay; but although tolerably plentiful, they are always very difficult to obtain, on account of the nature of the localities they frequent and their retiring disposition. They are seldom to be seen without lying in wait for them; and not always then can one obtain a shot, except, perhaps, at such close quarters as would entirely destroy them.

They move about more in the evenings and early morn, and at

night may be heard calling to one another as they traverse the dense masses of rank vegetation which abound in those districts. I never met them out of these scrubs, although thick swampy grass-beds close by were frequented by allied species.

They seem very local in their habits, a pair frequenting the same spot for months or perhaps the whole year round, and breeding near the same place year after year; the young soon begin to take care of themselves, and leave the parents before they are well able to fly. I found them some four or five months old in pairs.

The note resembles a hoarse croak quickly repeated in a somewhat mournful tone, and a quick "cluck cluck" when come upon suddenly. I was not fortunate enough to find the nest and eggs myself; but shortly after I left the Herbert river I received a fine set of these eggs from Inspector Robert Johnstone, to whom the bird is well known, and who assures me that after finding the nest and eggs he left it until he had twice seen the bird sitting thereon, that he might be perfectly sure there could be no mistake as to their identity.

I had informed Mr. Johnstone of my doubts as to the authenticity of the eggs mentioned by Mr. Gould, on the authority of Cockerell, who, I have been informed, did not actually take them himself, the eggs in question having been brought to his companion Mr. J. Thorpe by a black fellow. I have before me one of these *white* and so-called Rail's eggs, which I obtained from Mr. Thorpe on his return with Cockerell from Cape York, and can only say that it is remarkably like that of a *Pigeon* (!) in *every* respect.

The eggs forwarded by Inspector Johnstone, of the authenticity of which I have not the slightest doubt, have a pale cream or whitish ground-colour, sprinkled all over, but more thickly at the larger end of some, with irregular-shaped spots of light reddish chestnut, and a few of a lilac tinge appearing as if beneath the surface of the shell, having the characteristic form, markings, and colour of all true Rail's eggs. They are four in number, in length 1.5 to 1.6 inch, in breadth 1.07 to 1.1 inch. The nest was composed of a few leaves and grass, and hidden among thick débris at the root of a tree in a dense part of the scrub near Mr. Johnstone's camp. The young on leaving the egg are covered with a sooty-black down, having a dark plumbeous tinge on the under surface.

The young at about five months old have the upper surface of a dull dark brown tinged with olive and washed with light rufous brown on the back of the neck; the under surface is of a duller and more plumbeous brown, with a faint wash of rufous brown on the chest and under tail-coverts, which latter have two pale rufous bars on each feather; the under surface of the wings blackish dull brown, a band of white spots near the base, and a similar band about the middle of the quill-feathers; bill olive-brown; legs greenish olive; iris reddish brown. Total length 7 inches, wing 3.6, tail 1.5, tarsus 2 inches, bill .9.

4. Description of new Land and Freshwater Shells from India. By SYLVANUS HANLEY, F.L.S. &c.

[Received September 20, 1875.]

The first two of these fine shells were collected by W. Theobald, my coadjutor in the 'Conchologia Indica,' and have been figured, but not described, in that publication. As the specimens were unique, they have been retained for some years in the hope of obtaining other individuals; for the common practice of describing from single specimens should be avoided where practicable. The *Cyclophorus* has been delineated in the forthcoming final part of our joint work (pl. 144. f. 6), the *Ampullaria* in the preceding one (pl. 115. f. 2).

1. CYCLOPHORUS OPHIS, Hanl.

T. depresso-turbiniformis, satis magna, late umbilicata, nitida, solidiuscula, lævigata, brunneo et albido concentricè undata vel nebulosa, ad basim albida, maculis parvis diversiformibus spirali-ter fasciata; spira satis elevata, apice livido. Anfractus valde convexi, 5½-6, superne paululum planiores, celeriter (ultimus præsertim) accrescentes; sutura simplex. Apertura alba, permagna, unice hians, suborbicularis, latior quam alta, infra basim porrecta: labium acutum, late reflexum, undique expansum.

Lat. circiter 2 poll.

Hab. Tenasserim.

Mus. Theobald.

This remarkable-looking shell reminds one of *C. tuba* in shape, and *C. siamensis* in painting. Our specimen has an indistinct, interrupted, whitish peripheral fillet; and its surface exhibits, when magnified, some faint and close-set spiral wrinkles upon the upper portion of the final volution.

2. AMPULLARIA THEOBALDI, Hanl.

T. magna, solida, globosa, nitida, sublævigata, rugis incrementi umbilicum magnum versus subplicata; flavo-olivacea, antice (præsertim) vittis brunneis, et plerumque angustis, ornata. Anfractus spiræ vix elevatæ, et sæpius erosæ, lati brevesque. Sutura profunda, in adultis subcanaliculata. Apertura elliptica; faux chocolati colore tincta; labium exterius albidum, seu flavescens, fusco-nigrescente subarticulatum; labium interius atrofusum.

Long. et lat. 3½ poll.

Hab. Bhamao, Birmah (Theobald).

Mus. Hanley.

This magnificent shell is named in honour of my coadjutor in our illustrated Indian conchology, wherein it has been delineated. It has the general aspect of *A. zonata*, is broad in proportion to the height, and has apparently no fillets near its profound suture. The calcareous opercle is heavy, and within of a livid smoke-colour.

The specimen described seems old, though in fine condition; of course its characters will be modified in less-mature examples. I state this because I suspect that some young fragile shells from the Naga hills may prove identical.

3. ACHATINA (GLESSULA) SENATOR, Hanl.

T. subovato-conoidea, nonnunquam angustior, tenuis, nitida, lævigata, chocolati colore tincta, vitta flavescens seu pallida conspicue ornata. Anfractus convexi, multo latiores quam alti (in exemplo imperfecto $6\frac{1}{2}$), celeriter accrescentes, infra suturam valde impressam vitta perangusta, et supra suturam vitta lata (in anfractu ultimo paululum supra medium posita) picti. Spira circiter dimidium testæ occupans; apex pallidior, subito obtusus. Columella brevis, pallidior, subito obtusus. Columella brevis, pallida, arcuata, late truncata.

Long. 1.

Hab. In Indiâ meridionali.

Mus. Beddome, M'Andrew.

Only four specimens are known to me, all from the Cottyam Hills: two are young and rather narrow in proportion to the fine but broken-lipped example I have described, which once belonged to the celebrated Indian conchologist W. Benson; it will be figured in the 'Conchologia Indica' (pl. 155. f. 4).

4. ACHATINA (GLESSULA) ISIS, Hanl.

T. turrito-subcylindræa, lævis, tenuis, nitidissima, albida seu pallida, nonnunquam vitta angusta fulva, lineis perparvis fulvis confertis circumcincta: vitta variabilis seu sæpius versum basim anfractuum superiorum et supra medium anfr. ultimi posita. Anfractus circiter 10, convexi, sensim accrescentes, ad suturam profundam sub lente obsolete subcrenati, multo latiores (ultimo excepto) quam alti: apex obtusus. Apertura angusta, quartam partem totius altitudinis paululum superans. Columella brevis, arcuata, oblique contorto-truncata.

Long. $1\frac{1}{3}$ poll., lat. $\frac{2}{7}$ poll.

Hab. Indiam meridionalem.

Mus. Hanley.

A figure of this will be found in the 'Conchologia Indica' (plate 155. f. 5). The hair-like lines and narrow fillet seem peculiar to the species: the fillet, however, is neither constant, nor fixed as to position.

5. UNIO VULCANUS, Hanl.

T. solida, inæquilateralis, subovata, viridis, undique (nisi fortasse ad extremitatem anticam) plicato-rugosa; plicæ (seu tubercula elongata confluentia) undatim angulariter et oblique ordinatæ. Margo dorsalis posticus et margo ventralis convexi, subparalleli. Costa umbonalis nulla; area postica nequaquam concava. Lunula lata, haud multum impressa. Margarita alba, vix minime iridescens. Margo cardinalis latus; dentes cardinales solidi,

lacerati; in valvula sinistra dens lateralis inter duos valvulæ dextræ insertus.

Long. 1 poll., lat. $1\frac{1}{3}$ poll.

Hab. Birmah, vel Pegu.

Mus. Hanley.

The beaks are eroded in our only specimen of a shell (Conch. Indica, pl. 155. f. 3), which reminds us somewhat in structure of the *Unio tavoyensis* of Gould. When held before a light the valves appear of a yellowish green, richly embossed with zigzag ridges of a darker or bluer verdure. The hinge is nearly the same as in *U. fari-dens* of Benson, the central teeth being short and very complicated.

5. Further Observations on *Alcyoncellum speciosum*, Quoy et Gaimard, and *Hyalonema mirabile*, Gray. By J. S. BOWERBANK, LL.D., F.R.S., F.Z.S., &c.

[Received September 24, 1875.]

On Wednesday the 8th September, 1875, I received a jar of specimens from Commodore Parish, of Hong-Kong, which he stated he obtained from the 'Challenger' when there. The specimens were preserved in spirit in the condition in which they were taken from the sea. They consisted of two specimens of *Alcyoncellum speciosum* with their dermal membrane and sarcodous substance in a fine state of preservation, one fine specimen of *Hyalonema mirabile* with the basal sponge in fine condition and with its dermal membrane in perfect preservation, and a fine head of a recent pentacrinite with about three inches of its stem with side arms in a good state of preservation. These specimens, especially those of *Alcyoncellum speciosum* and *Hyalonema mirabile*, are exceedingly interesting, as their perfect state of preservation enables us to complete our knowledge of their anatomical peculiarities to a much greater extent than those, in a more or less imperfect condition, with which we have hitherto been acquainted. On mounting in Canada balsam small portions of the two specimens of *Alcyoncellum speciosum*, I found in a fragment from near the distal end of one of them the beautiful dermal expansile system of reticulated structure, composed of slender rectangulate sexradiate spicula, the distal ray of each terminated by a spinulo-quadrifurcate sexradiate stellate spiculum, which is so beautifully exhibited in the highly interesting skeleton of the specimen from a sponge of the same species presented to me by my friend Dr. Millar, and described by me in Part IV. of my "Monograph of the Siliceo-fibrous Sponges," in the Society's 'Proceedings' for 1875. The complete envelopment of these beautiful tissues by the dermal sarcodous code of the specimens in a natural state renders the identification of these delicate defensive organs by no means an easy task; and in truth, without the indications of their forms and proportions afforded by Dr. Millar's specimens, we could scarcely have hoped to detect them *in situ* amidst the dense amber-coloured sarcodous in

which they are immersed. Their complete immersion in the sarcode immediately beneath the dermal membrane indicates in a very satisfactory manner their peculiar office as expansile portions of the dermal system, and as organs of defence for the preservation of that important portion of the structure of the sponge.

The specimen of *Hyalonema mirabile* is in a much finer state of preservation than any of those which I formerly examined, and described in the 'Proceedings' of this Society for 1867; and it has enabled me to complete the description of many parts of this extraordinary species of sponge, which the dilapidated condition of the specimens to which I then had access prevented me from determining with accuracy.

The total height of the specimen received from the 'Challenger' is sixteen and a half inches. The basal spongy portion is of a conical form, two inches in height; and the average diameter of the base of the cone is two and a half inches. It is a fortunate circumstance that the basal membrane and that of the upper or conical portion of the spongy mass are both in a perfect state of preservation. The basal portion of attachment is very sinuous and irregular, as if it had been adherent to an undulating surface which had been of somewhat soft consistence, so that it had been separated from it without the destruction of the basal membrane of the sponge. The apex of the spongy mass closely embraces the spiral column of the cloacal system; and the lower part of the spiral column is completely buried in the basal sponge. The corium, in a more or less perfect state, extends from the apex of the spongy cone for about seven inches of the remaining portion of the spiral column of spicula; the remainder of which is bare, but spirally twisted to very near its distal termination. The corium is studded with the usual mamilloid oscular organs; and none of them exhibited the slightest indication of polypiferous contents, which we should naturally have expected to find, had such parasitical creatures been present, in a living specimen fresh from the sea, as the one in course of description evidently was.

The adherent basal surface of the sponge has a distinctly marked boundary-line, consisting of a well-produced slightly compressed projecting ridge of membrane; and a difference of the structure of the basal and the upper portion of the dermal membrane is distinctly visible to the unassisted eye. This difference in their aspects arises from modifications in the reticular structures of the two parts to fit them for their respective offices.

When small portions of each of the parts of the membrane were mounted in Canada balsam, their differences in structure became strikingly evident. The same forms of spicula were to a greater or a less extent present in both, but the modes of their distribution and arrangement were very different. The rete of the basal portion is comparatively compact and strong, and closely approaching regularity. It is constructed with the long inflato-acerate spicula which are common to both parts of the membranous skeleton structure, but with a considerable mixture of large rectangulate sexradiate spicula, which

adds considerably to its strength ; and the membranes of the areas are abundantly supplied with the minute quadrihamate defensive spicula, which are all disposed on the membrane on their flat surfaces. In the structure of the upper portion of the dermal membrane the rete is open and diffuse, and the areas assume an irregular elongate form ; and the rete is composed only of large inflato-acerate spicula, without apparently any intermixture of the large rectangulate sex-radiate ones, which are of such common occurrence in the basal portion of the membrane. Another distinctive structural difference is, that the areas in the rete of the dermal membrane are furnished in a strikingly beautiful manner with the spinulate cruciform defensive spicula, which are abundantly disposed on all parts of the surface at nearly equal distances from each other in a manner closely approaching regularity ; and nearly all of them are projected at right angles to the surface on which they are based. The minute quadrihamate spicula so abundant on the basal membrane are very rarely to be detected on the upper dermal one.

These structural modifications of the dermal membrane indicate the difference in the respective offices of the two parts of the animal in a very striking manner ; but not to a greater extent than we may observe in many sessile British sponges under similar circumstances.

A minute description of these characters of the respective parts of the dermis of the sponge are especially necessary, as much misapprehension has existed in the minds of some naturalists as to the true position of *Hyalonema* in its natural locality, some having imagined that the pointed end was deeply plunged into the bottom of the sea, and that the sponge-mass was the distal termination of the animal.

In all sponges with which I am acquainted, the attachments are either adhesive, or clasping like the roots of Fuci, never penetrative like the roots of plants that derive nutriment from the soil, which sponges never do. The idea of the slender pointed distal termination of *Hyalonema* being plunged into the sea-bottom, and thus supporting a heavy mass of sponge at its opposite end, is contrary to all we really know of the usual habits of these animals in their natural localities. In corroboration of this opinion, I may state that amongst the various specimens of this species of sponge which I possess, I have one thirteen inches in length, the distal extremity of which for six inches of its length is completely enveloped by the corium, which has the usual mamilloid organs upon it up to the extreme apical termination. These organs, which have been supposed to be polyp-cells, would have been in a very strange position had they ever been immersed in the soft substance of the sea-bottom. In further elucidation of this subject, I may refer my readers to an article on *Hyalonema* in 'Land and Water,' for February 13, 1871, p. 219, written, I am informed, by a naval officer of the name of Templar. He writes :—"For Dr. Bowerbank's theory concerning *Hyalonema*, 'or the long glass-rope sponge,' and his belief in the siliceous spicula growing upwards, the sponge adhering to a rock, I have great respect as well as belief. His friend, Mr. Henry Lee, wrote to me when in Japan to try and discover 'if such was the case ;' and from what I

could glean I found it was so. Two English gentlemen saw it brought up by divers from the bottom, who stated it grew sponge downward and spicula upwards. Upon stating this to an awful authority of the British Museum he said, 'Pshaw! Japanese always stuff up Europeans,' and added by way of proof, 'we hauled up some the other day in the Bay of Biscay with a hook and line, and the spongy stuff came up first, so it must be so.'"

6. On a Collection of Butterflies from the New Hebrides and Loyalty Islands, with Descriptions of new Species. By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

[Received October 2, 1875.]

(Plate LXVII.)

It will be remembered that I published a list of the Butterflies of the South-Sea Islands in the 'Proceedings' for 1874, in which I enumerated 104 species, reported by various entomologists as occurring in that interesting region. In the present paper I propose to give a list of the species recently sent to the British Museum by our indefatigable correspondent W. Wykeham Perry, Esq., H.M.S. Pearl, as the result of a short cruise through the New Hebrides.

Mr. Perry writes, "We made such a hurried run through the group, that I had but a few hours to spend at each place which we visited, and therefore less opportunity than I had hoped to have of making a more varied collection."

Notwithstanding the short time in which the whole of the species were captured, they represent a most interesting and instructive consignment, not only as clearing up difficulties respecting some of the forms inserted with hesitation in my previous list, but because nearly half of them are new to science—one or two being, moreover, referable to genera which have ever been especial favourites with lepidopterists.

Fortunately, Mr. Perry has sent good series of several of the commoner species; so that their constancy is now firmly established, and all doubt of their being variations or sports of other Butterflies is at once set at rest.

The following is a list of the species.

1. *DANAIS PUMILA*, Boisduval.

Maré, Loyalty group, May 1875.

Previously only known from New Caledonia.

2. *DANAIS HEBRIDESIA*, n. sp. (Plate LXVII. fig. 6.)

♀. Allied to *D. pumila*, but considerably larger, the wings proportionally longer; primaries with the outer margin distinctly sub-angulated below the apex; basal yellow area rather paler; the sub-apical band more oblique, and consequently longer; secondaries with the upper discocellular scarcely perceptibly angulated; the



outer border broader, dark brown, becoming reddish on the margin; wings below paler, the discoidal cell of secondaries without any trace of longitudinal streaks: expanse of wings 2 inches 9 lines.

Aneiteum, New Hebrides, 22nd April 1875.

Danais pumila is a very constant and small species, measuring 2 inches 1–2 lines in expanse; the female has come in this collection; I therefore have no hesitation in considering the above insect from Aneiteum perfectly distinct.

3. *DANAIS MODERATA*, n. sp.

♀. Allied to *D. hamata*, from which it differs in the reddish basal costa of primaries, and in having all the subhyaline spots smaller, narrower, and paler in colour; wings below redder in tint: expanse of wings 3 inches 5 lines.

Vaté or Sandwich Island, New Hebrides, 28th April 1875.

D. hamata seems to have its representatives everywhere; whenever we receive an Indian or Indo-Australian collection, some form of it is almost sure to come. The following are now in the collection of the British Museum:—

1. *D. septentrionis*, from India; 2. *D. microsticta*, from Borneo; 3. *D. leucoptera*, New Guinea; 4. *D. hamata*, Australia; 5. *D. melittula*, Upolu; 6. *D. obscurata*, Solomon Islands; 7. *D. moderata*, Sandwich Islands.

4. *EUPLŒA HELCITA* ♀, Boisduval.

Erromango Island, New Hebrides, 10th May 1875,

5. *EUPLŒA LAPEYROUSII* ♂, Boisduval.

Havannah, Waté or Sandwich Island, 30th April, 1875; Mota Island, New Hebrides, 5th May, 1875.

6. *EUPLŒA TORVINA*, n. sp.

♂. Nearly allied to the preceding, with the same elongated sericeous streak on upper surface of primaries, but slightly longer in the wing, altogether deeper in colour, and with the marginal area and anal angle of secondaries much less pale; no subapical diffused whitish streak in primaries; the same differences below, but much more evident, the costa of secondaries also nearly straight and the litura on first median interspace of primaries elongated into a streak: expanse of wings 3 inches 1 line.

Aneiteum, 22nd April, 1875.

7. *CALLIPLŒA IPHIANASSA* ♂, ♀, Butler.

Aneiteum, New Hebrides, 22nd April, 1875.

Two forms of this species occur, one having the submarginal spots of primaries large towards costa, the other having them small; this modification is found in both sexes.

8. *CALLIPLŒA SERIATA*? Herrich-Schäffer.

Maré, Loyalty group, May 1875.

One example is smaller than usual, and has lost most of the submarginal spots on under surface of secondaries: the description by Herrich-Schäffer is scarcely sufficiently explicit.

9. *CALLIPLCEA TULLIOLUS* ♀, Fabricius.

Erromango Island, New Hebrides, 10th May, 1875.

10. *MELANITIS TAITENSIS*, Felder.

Aneiteum, New Hebrides, 22nd April, 1875; Tanna, 23rd April 1875.

11. *MELANITIS SOLANDRA*, Fabricius.

Tanna, New Hebrides, 23rd April, 1875; Vaté or Sandwich, 30th April, 1875.

Four examples of this form, exhibiting no variation on the upper surface of the wings.

12. *MYCALESIS MUTATA*, n. sp.

Nearly allied to *M. hesione*, but deeper in colour, and with the ocelli below separated by a space from the central white streak and touching the submarginal lines: expanse of wings 1 inch 9 lines to 2 inches.

Erromango, New Hebrides, 10th May, 1875.

This is the first species of this genus hitherto recorded from the South Seas; in marking it nearly approaches *M. cinerea*: Mr. Perry remarks respecting it, "saw but few of these in Erromango, and none in any other island."

13. *MYCALESIS LUGENS*, n. sp.

Allied to *M. lalassis*; ocelloid spot on upper surface of primaries scarcely visible: wings below dull sepia brown, crossed at the middle by a slightly irregular, continuous, slender, black-edged, whitish line; primaries with four ocelli (the first two placed obliquely, the fourth largest), black, white-pupilled, with dull ochraceous irides and brown zones enclosed by a pale brown line; a rather wide sinuated marginal area pale brown, intersected by a blackish line: margin black; fringe pale brown; secondaries with seven ocelli, (the first and fifth largest, the second and third smallest), similar to those of primaries, but brighter in colour, marginal area as in primaries; body greyish brown: expanse of wings 1 inch 8 lines.

Vaté or Sandwich Island, New Hebrides, 28th April, 1875.

This is most like the Bornean form of the series generally referred to *M. lalassis*; the latter requires examination, as it clearly represents several well-marked species.

14. *DOLESCHALLIA HERRICHII*, n. sp.

Doleschallia bisaltide, Herrich-Schäffer (nec Cramer).

This species, as I supposed, differs considerably from *D. bisaltide*, as follows—primaries much less falcated, the black area deeper in colour and covering half the wing, the marginal area being much

broader; short ochreous fascia beyond end of cell narrower and deeper in colour; the spot which follows it (at the end of the subapical series of white spots) white or nearly white, and placed further off; secondaries shorter, with the dark spots and submarginal lines blacker; below, all the markings brighter and better defined, the silvery spots present in the male, which is generally more deeply coloured, whilst the female is paler in tint than *D. bisaltide*: expanse of wings 2 inches 10 lines to 3 inches.

Erromango Island, New Hebrides, May 1875.

15. *DOLESCHALLIA MONTROUZIERI*, n. sp.

Nymphalis polibete, Montrouzier (nec Cramer).

Above very like the preceding species, but much smaller, the lower black spot of secondaries with a lilacine pupil; below much like *D. polibete*, but duller in colour, with the ocelli proportionally larger and better defined: expanse of wings 2 inches 5 lines.

Vanua Levu, New Hebrides, 6th May, 1875.

This species cannot be mistaken for *D. polibete*, the upperside being altogether brighter in colouring, with the black-brown area much more sharply defined as in *D. bisaltide*. It seems that I did not go far enough in my anticipations with regard to *Doleschallia*; I expected only to see one new form from the South Seas, whereas two have been discovered.

16. *CHARAXES CLITARCHUS* *, Hewitson.

Maré, Loyalty group, May 1875.

This scarce and beautiful species has hitherto been unique in Mr. Hewitson's collection from New Caledonia; our example is rather larger, and has the primaries slightly more falcated than the type; it also differs, in several unimportant points, in pattern and coloration.

17. *DIADEMA NERINA*, var. Fabricius.

Erromango, New Hebrides, 10th May, 1875.

One example of a handsome variety of *D. nerina*, in bad condition; it approaches *D. proserpina* in colouring, but has the oblique subapical band of primaries clouded with fulvous.

18. *DIADEMA PERRYI*, n. sp. (Plate LXVII. fig. 3.)

Size and form of *D. montrouzieri*: general character of pattern as in *D. pandarus*.

♂. Wings above deep brown; several streaks across the cell, a broad oblique postmedian diffused band, and two submarginal undulated bands separated only by a black line, pale brown; a bifid subapical costal spot placed obliquely on the subcostal branches, and six rounded discal spots parallel to the margin, all white with a narrow lilacine edging; secondaries with the discal area from just beyond the cell abruptly paler, becoming tawny ochreous externally, and bounded near the outer margin by a series of ochreous lunulated

* Exot. Butt. V. *Char.* pl. iv. figs. 16, 17 (Oct. 1873).

spots; centre of discal area traversed by eight violaceous ocellated spots with white pupils and black margins; outer margin dark brown intersected by a lunated paler brown line; fringe white-spotted: body black-brown: wings below paler than above, all the markings lighter, the discal spots larger, pale blue with white centres and black edges: body brown, legs and palpi streaked with white: expanse of wings 3 inches 11 lines.

♀ paler than the male, the lighter parts especially; postmedian band of primaries sordid white; ocelli smaller: expanse of wings 3 inches 11 lines.

Erromango, New Hebrides, 10th May, 1875.

This is one of the finest species that has hitherto come from the South Seas.

19. *ATELLA BODENIA*, M. R. Butler.

Maré, Loyalty group, May 1875.

Much darker than the type from the Friendly Islands, and consequently more like *A. egista*, but smaller and darker; I am now satisfied that I was right in considering the *A. egista* of Herrich-Schäffer synonymous with *A. bodenia*.

20. *LAMPIDES PLATISSA*, Herrich-Schäffer.

Erromango, New Hebrides, May 10th, 1875; Maré, Loyalty group, May 1875.

This species seems to be very common.

21. *LAMPIDES SAMOA*, Herrich-Schäffer.

Erromango, New Hebrides, May 1875.

This species seems to me to be the *L. caledonica* of Felder.

22. *LAMPIDES ARMILLATA*, n. sp.

♂. Above copper-brown with violet reflections; base blackish with blue reflections; marginal edge black; fringe grey; secondaries with two subanal black spots bordered with yellowish brown; body blackish clothed with grey hairs; palpi white at the sides; antennæ white spotted with black above, club black above, tawny below: wings below stone-colour; primaries with a spot at end of cell, a slightly curved series across the disk, and a very indistinct marginal series whity brown bordered with reddish brown and whitish; secondaries greyer than primaries, speckled with black at base; a spot at end of cell, a series all round it, and an indistinct marginal series drab margined with dark brown and white; marginal series in both wings with central brown spots; anal black spots spotted with brilliant silver and bordered with straw-yellow: body grey, speckled with black: expanse of wings 9 lines.

Vaté or Sandwich Island, New Hebrides, 24th and 28th April, 1875.

23. *LAMPIDES DEPLORANS*, n. sp.

Allied to the preceding. Wings above dark grey, becoming

blackish at the extremities; secondaries with two indistinct black subanal spots; body black: wings below pale grey; primaries with outer margin broadly brown, diffused internally; a spot at end of cell and an irregular transverse discal series grey, outlined with dark brown and white; secondaries with a constricted spot at end of cell enclosed by a double series of spots grey, outlined with dark brown and white; a discal series of lunules parallel to the margin and enclosing a submarginal series of spots, the three nearest to anal angle large, black, speckled with metallic steel-coloured scales; extreme margin black, fringe brown, varied with sordid white; body grey: expanse of wings 11 lines.

Maré, Loyalty group, May 1875.

I was at first inclined to consider this the female of the preceding species; but the outline bands of the underside do not quite agree, and there are three instead of two metallic speckled spots in secondaries; these differences, taking the different habitat into consideration seem to indicate a distinct species.

24. *LAMPIDES CARISSIMA*, n. sp. (Plate LXVII. figs. 4, 5.)

Allied to *L. candrena*. ♂. Bright Morpho-blue, with the outer margin narrowly black; secondaries with two linear subanal black spots; abdominal margin brown; tail black, tipped with white; body blackish grey; collar white behind the eyes; frons with two cream-coloured lines; palpi white below; antennæ black, annulated with white below: wings below drab, with whitish-edged bands as in *L. candrena*; secondaries with two subanal black spots, speckled with pale metallic-blue scales and bordered above by orange lunules; body greyish at the sides, white below: expanse of wings 1 inch 2 lines.

♀. Above paler blue, with broad blackish grey borders along the costæ and outer margins; secondaries with a submarginal series of blue-edged black spots; abdominal margin brown; body grey, thorax bluish, head as in the male; underside nearly as in the male, but paler, all the markings well defined, edged with white: expanse of wings 1 inch $1\frac{1}{2}$ line.

Erromaugo, New Hebrides, May 10th, 1875.

We have this species in the collection of the British Museum from the Navigators' Islands.

25. *LAMPIDES CANDRENA*, Herrich-Schäffer.

Tanna, New Hebrides, 23rd April, 1875.

This and the preceding are two of the most beautiful of the small blue butterflies; they belong to the *L.-democritus* group.

26. *LAMPIDES EVANESCENS*, n. sp.

♂, ♀. Allied to *L. ælianus*, from which it differs in the slightly shorter wings and broader black border to primaries above, the more distinct marginal spots of secondaries, the greyer tint of the underside, with narrower and somewhat differently arranged transverse white bands; subanal black spots of secondaries smaller, with larger

orange zone : expanse of wings, ♂ 1 inch 2 to 4 lines, ♀ 1 inch to 1 inch 4 lines.

Erromango, New Hebrides, May 10th, 1875.

The white bands on the under surface of secondaries are not separated at such equal distances as in *L. ælianus*.

27. *LAMPIDES ARGENTINA* ♀, Prittwitz.

Tanna, New Hebrides, 23rd April, 1875.

A rare species, of which we previously only possessed the male.

28. *LAMPIDES PERASIA* ♂, ♀, Felder.

Tanna, New Hebrides, 23rd April, 1875.

29. *LYCÆNA PHŒBE*, Murray.

Vaté or Sandwich Island, New Hebrides, 28th April, 1875 ;
Erromango, New Hebrides, May 1875.

The undescribed *L. communis* of Herrich-Schäffer is this species, of which I believe his *L. alsulus* to be only a dark female. We obtained most of his South-Sea *Lycænidae* from the Godeffroy Museum.

30. *LYCÆNA CADUCA*, n. sp.

Wings above lilac, primaries with the costa, apex, and outer margin broadly dusky ; secondaries with the costal half and outer margin dusky ; a submarginal series of blackish dots, margined internally by sordid white lunules : body grey ; antennæ black, annulated with white : wings below pale grey, fringes long, tipped with grey ; primaries with a spot at end of cell, a discal transverse series of six spots, and a submarginal series bounded internally by a connected series of lunules, all dusky brownish, edged with white ; secondaries with a spot at end of cell surrounded by an irregular double series of spots, and a submarginal series bounded by lunules internally, all coloured as in primaries ; body below white : expanse of wings 9 to 10 lines.

Erromango, New Hebrides, May 1875.

This is one of the smallest of the blues ; it seems most nearly to approach the *L. knysna* group.

31. *SCOLITANTIDES EXCELLENS*, n. sp. (Plate LXVII. figs. 1, 2).

Allied to *S. cleotas*, but differing in the male having the purple colour spread over the primaries and the centre of secondaries, in the absence of a black spot at end of discoidal cell, the black veins, and the smaller orange patch on the secondaries.

♂. Above shining dull violet, veins black ; primaries with the outer margin narrowly greyish black ; secondaries with the costal area grey, outer margin narrowly black, preceded on discoidal median and interno-median interspaces by a sinuated quadrifid orange patch ; abdominal margin grey ; body blackish, abdomen with whitish margins to the segments ; antennæ black, annulated with white : eyes with a white zone ; palpi white below : wings below grey.

crossed by large white-edged black spots, nearly as in *S. cleotas*; secondaries with a large orange patch; body below sordid white: expanse of wings 1 inch 5 lines.

♀. Black-brown above, with larger orange patch in secondaries; otherwise as in the male: expanse of wings 1 inch 6 lines.

Tanna, New Hebrides, 3rd April, 1875.

32. *TERIAS SULPHURATA*, n. sp.

Nearly allied to *T. cesiope*, but of a sulphur- rather than a saffron-yellow colour, the black margin of primaries also more perpendicular above the sinus and consequently slightly narrower towards the costa; markings below not so much pronounced, but otherwise very like: expanse of wings 1 inch 9 lines.

Maré, Loyalty group, May 1875. (Two examples.)

33. *TERIAS VARIATA*, n. sp.

Only differs from the preceding in its much smaller size: expanse of wings 1 inch 3 to 4 lines.

Erromango, New Hebrides, 10th May, 1875.

Three examples of this form came, but much injured. Mr. Perry remarks that they seem to be very common all over the New Hebrides; he, however, confounds the following small species with them, the differences being slight between the various species in this genus.

34. *TERIAS HEBRIDINA*, n. sp. (Plate LXVII. fig. 8.)

Very like *T. senegalensis*, but of a more sulphurous tint, smaller, and with the black border of primaries continued as a quadrate spot along inner margin as in *T. hecabe*: expanse of wings 1 inch 5-6 lines.

Tanna, New Hebrides, 23rd April, 1875; Erromango, New Hebrides, 10th May, 1875.

Five examples of this species came. It is probably the *T. hecabe* of Herrich-Schäffer, and consequently of my list, although not the same as the Australian example mentioned by me as in the British-Museum collection.

35. *TERIAS INANATA*, n. sp.

Only differs from the preceding in the entire absence of markings on the under surface of the wings: expanse 1 inch 5 lines.

♂, Mota Island, 5th May, 1875; ♀, Erromango, 10th May, 1875.

36. *TERIAS PUMILARIS*, n. sp. (Plate LXVII. fig. 7.)

Sulphur-yellow; primaries with the costal margin blackish, outer margin rather broadly and regularly brown-bordered, the border being bisinuated within the median interspaces; secondaries with brown spots at terminations of the nervures, sometimes concurrent; body blackish: wings below paler yellow; nervures terminating in black dots; an annular marking at the terminations of the discoidal cells; secondaries with an annular marking on the subcostal area near the

base ; body pale dull yellow : expanse of wings 1 inch to 1 inch 3 lines.

Tanna, New Hebrides, 23rd April, 1875 ; Vaté, New Hebrides, 30th April, 1875.

This species belongs to the *T.-hecabe* group, but differs from all its allies in its narrow elongated primaries with more rounded apex : the sinuation of the outer border is also much less marked ; so that the insect has a very different aspect.

37. CATOPSILIA LACTEA, Butler.

♂, ♀, Erromango, New Hebrides, 10th May, 1875.

The male is too much worn to be placed in the collection ; but the female is quite fresh ; in all probability therefore the male appears a month or so earlier than the female, as in many other butterflies.

38. BELENOIS PERISTHENE ♂, ♀, Boisduval.

Erromango, New Hebrides, May 10th, 1875.

Mr. Perry says that he "observed this butterfly in Maré Island, Loyalty group." It seems to be a common species.

39. BELENOIS NABIS ♂, ♀, Lucas.

Vaté, 28th and 30th April, 1875 ; Erromango, New Hebrides, 10th May, 1875.

The series sent by Mr. Perry (one pair of which was taken *in copulâ*), clearly demonstrates its identity with *B. periclea* of Felder.

40. PAPILIO HYPsicLES, Hewitson.

Tanna, New Hebrides, 23rd April, 1875.

The example sent is smaller than the typical form, and does not show the orange submarginal lunules on upper surface of secondaries.

41. PAPILIO ABSTRUSUS, n. sp.

Wings above black, fringe varied with cream-colour ; primaries with a narrow postmedian oblique cream-coloured band separated into seven divisions by the nervures, a subapical cream-coloured litura, and five other less distinct squamose submarginal lituræ ; secondaries with a rather large cream-coloured patch, beginning at costal nervure (where it is narrow) and continued to the base of the second median interspace, angularly irregular on its outer edge, and having six divisions owing to its crossing the end of the cell ; two elongated squamose creamy submarginal lunules between the tail and anal angle ; tail rather short, scarcely spatulate ; a deep crimson spot on inner margin, just below the abdominal fold : body deep brown, head, collar, and margins of tegulæ spotted with sordid pale yellow ; antennæ black : wings below black, fringe varied with cream-colour, nervures at base and several parallel diverging lines from the base of the discoidal cells pale yellow ; primaries with postmedian band and subapical spot broader than on the upper surface seven, well-marked squamose cream-coloured submarginal lunules ; secondaries with the patch of upper surface continued as a narrow band to the inner

margin and bounding a large oval orange-red spot on inner margin ; between the red spot and the broad central part of the creamy band a few scattered blue scales ; a discal submarginal series of large spots orange-red with creamy lateral edges ; body dull brown, palpi, legs, and venter streaked with pale yellow : expanse of wings 3 inches 9 lines.

Maré, Loyalty group, May 1875.

This is a most puzzling species : above it has somewhat the aspect of *P. nephelus* with the hind-wing spot of *P. helenus* ; but below it agrees better with *P. godeffroyi* than with any other *Papilio* at present known to me.

With the preceding collection of butterflies Mr. Perry sent three examples of a small Homopterous insect closely allied to *Tarandia australis* of Walker, from Vaté Island. He says, "This insect was found numerous under the leaves of shrubs in dark parts of the bush."

EXPLANATION OF PLATE LXVII.

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| Fig. 1. } | <i>Scotitantides excellens</i> , p. 616. | Fig. 6. <i>Danais hebridesia</i> , p. 610. |
| 2. } | | 7. <i>Terias pumilaris</i> , p. 617. |
| 3. <i>Diadema perryi</i> , p. 613. | | 8. — <i>hebridina</i> , p. 617. |
| 4. } | | |
| 5. } | <i>Lampides carissima</i> , p. 615. | |

7. On a small Collection of Butterflies from Fiji.

By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

[Received October 20, 1875.]

Mr. W. Wykeham Perry has recently sent us the Lepidoptera obtained during his late visit to the Fiji Islands—thirteen examples, referable to six species, as follows :—

Family NYMPHALIDÆ.

Subfamily DANAINÆ.

Genus EUPLŒA, Fabricius.

1. EUPLŒA PROSERPINA, Butler (four examples, nn. 266–269).

♂, Ovalau 30th June, 1875 ; ♂ ♀ *in copula*, Vanua Levu, 3rd July.

I had not previously seen the female of this species ; it is rather larger than the male, and the secondaries are slightly paler in tint ; all the white spots are larger, the inner margin of primaries straighter, and the silky streak is absent.

Subfamily SATYRINÆ.

Genus XOIS, Hewitson.

2. XOIS SESARA, Hewitson (two examples, nn. 263, 264).

♂ ♀, Ovalau, 30th June, 1875.

This is a very common species.

Subfamily NYMPHALINÆ.

Genus JUNONIA, Hübner.

3. JUNONIA VILLIDA, Fabricius (one example, n. 265).

♀, Ovalau, 30th June, 1875.

Also a common species.

Genus DIADEMA, Boisduval.

4. DIADEMA PALLESCENS, Butler (two examples, nn. 259 & 261).

♂, Ovalau, 30th June, 1875.

The male was not previously in the Museum collection; it is most like *D. alcmena*, but smaller, with smaller bluish spots above; below the primaries are redder at the base, and have an oblique postmedian band (as in the male of *D. nerina*); the secondaries also differ in the smaller submarginal whitish spots, and in having a white central band: expanse of wing 3 inches 6 lines.

Family LYCÆNIDÆ.

Genus LAMPIDES, Hübner.

5. LAMPIDES CANDRENA, Herrich-Schäffer (two examples, nn. 270 & 271).

♂, Vanua Levu, 3rd July, 1875.

Family PAPILIONIDÆ.

Genus PAPILIO, Linnaeus.

6. PAPILIO SCHMELTZI, Herrich-Schäffer (two examples, nn. 260 & 262).

♂, Ovalau, 30th June, 1875.

Both examples of this rare and handsome species are in good condition. It is highly satisfactory to have thus obtained Dr. Herrich-Schäffer's species from the typical localities. I am also interested to see that the *Diadema auge* of that author (but not of Cramer) is my *D. pallescens*; for it is additional evidence of the constancy of the latter species: his remarks respecting it are as follows:—

“Jedenfalls nur aberratio, im Habitus und der Zeichnungsanlage ganz mit polymena Fld. Nov. t. 55. f. 5, 6 übereinstimmend, aber beiderseits ohne schwarzen Streif vor dem Saume. Die O Seite ist schmutzig ockergelb, gegen die W braun, an der kleineren Spitzenhälfte der Vfl und hinter der Zelle der Hfl weisslich. Unten in Z 1 b und 2 vor dem Saume ein weisser, dunkel umzogener Quersfleck.”

The above description suits *D. pallescens* ♀ in all respects, excepting, perhaps, the part relating to the spot in cells 1 b and 2, which may or may not be correct, seeing that it is impossible to guess what cells are meant.

8. Descriptions of several new Species of *Sphingidæ*.

By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

[Received October 20, 1875.]

Genus PROSERPINUS, Hübner.

1. PROSERPINUS ÆNOTHEROIDES, n. sp.

Size, form, and pattern of *P. ænotheræ*, but the primaries greyish white, with the band and subapical spot dull brownish ochreous, and the external area yellowish olivaceous; black band of secondaries rather narrower; body grey, with the crest, middle of collar, tegulæ, and dorsum ochraceous; antennæ shorter: wings below paler, with all the markings ochraceous or yellowish olivaceous instead of olive-green; fringe of primaries and discoidal area brown: expanse of wings 1 inch 10 lines.

Brazil.

Type, B.M.

If we had not obtained this from a collection of Brazilian Sphinges, and labelled "Brazil," I should have considered it merely a pale variety of *P. ænotheræ*; as it is, I can only consider it a geographical form of that species.

Genus LOPHURA, Walker.

1. LOPHURA HIMACHALA, n. sp.

Allied to *L. masuriensis*, differs as follows:—altogether darker, the primaries with a black waved band from just beyond the end of the cell to the outer margin, where it expands and curves downwards to the external angle; an irregular external black marking from apex to first projection of outer margin; all the pale markings obsolete; secondaries with the outer border blacker and slightly narrower; outer margin waved, but not undulated; expanse of wings 1 inch 8 lines.

N.E. Himalayas (*Farr*).

Type, coll. F. Moore.

2. LOPHURA SANGAICA, n. sp.

Also allied to *L. masuriensis*; primaries much browner; a large slightly paler area, bordered by a blackish line, situated upon the inner margin; the dark line runs from external angle in a curve to end of cell, and then obliquely downwards to the middle of the inner margin; all the pale markings obsolete; secondaries with the external border more uniformly dark brown, not undulated, only half the width, not reaching the anal angle, but terminating in a small blackish spot; body greyish, markings not defined: expanse of wings 1 inch 7 lines.

Shanghai.

Type, coll. F. Moore.

3. LOPHURA EREBINA, n. sp.

Nearly allied to the preceding, differs from *L. masuriensis* as follows:—primaries blackish brown, black transverse lines less distinct, pale markings obsolete; secondaries with outer border much darker,

about half the width, abruptly failing just before anal angle, outer margin not undulated; body greyish, markings obsolete: expanse of wings 1 inch 7 lines.

N.W. India.

Type, coll. F. Moore.

Genus PERGESA, Walker.

1. PERGESA MONGOLIANA, n. sp.

Like a small example of *P. velata* from Darjeeling, but differing as follows:—central band of primaries above much less defined, more oblique, touching the inner margin at external angle, only black at its lower extremity; remainder of the wing decidedly darker, so as to obscure the markings; discal area pale towards the apex and (in two diffused spots) between first and second median interspaces; secondaries with the pale streak sharply defined at anal angle, where it forms a distinct, triangular, ochraceous spot; eyes and tegulæ clearly bordered with white; sides of coxæ and venter dull rose-colour: primaries below with outer brown border wider, paler areas red, a yellow patch towards apex, and a diffused yellow spot on second median interspace; secondaries red, greyish on interno-median area, costa tinted with yellowish: expanse of wings 2 inches 2 lines.

Nankow Pass, between Mongolia and China (*Swinhoe*).

Type, B.M.

The following is a description of the metamorphoses, from drawings made by a native Japanese artist under the superintendence of Mr. George Lewis:—

Larva. Whity brown at the sides, becoming gradually sandy brown towards the dorsal region, which is of a still deeper tint; the sixth and succeeding segments reticulated with dark brown; anterior portion of dorsal region on each of these segments obliquely blackish, quite black in front of the horn, which is normal in shape and testaceous; anterior segments slightly deeper in colour, with two lateral longitudinal lines, the inferior one indistinct and brown, the superior one black and terminating on the fifth segment in a large bipupillated black ocellus with yellowish iris and black margin; a subdorsal blackish litura on the anterior segments; head, venter, and claspers greyish brown, spotted with whitish; the feet black; thoracic legs testaceous: length 3 inches 1 line.

Pupa. Whity brown, clouded with grey, and mottled with whitish below (particularly in front); anterior portion of segments reddish; a lateral longitudinal series of black spiracular spots, with whitish borders: length 1 inch 5 lines.

The larva feeds upon balsam.

P. mongoliana appears to be not uncommon in Japan, and probably occurs also in China; the larva is not unlike the darker form of *Chærocampa lewisii*.

Genus CHÆROCAMPA, Duponchel.

1. CHÆROCAMPA PRUNOSA, n. sp.

Nearly allied to *C. rosina*, the wings longer and narrower, altogether

much darker in colouring; primaries much more grey in tint; costal margin pale brown, not white; all the bands narrower, the pale lines, and the broad pale band much narrower, the latter intersected down the centre (not within its inner half) by a brown line; secondaries almost black, the red band much deeper in colour and half the width; body darker; the sides of the abdomen brassy rather than reddish golden: wings below darker, external border much greyer; sides of venter more yellowish golden: expanse of wings 3 inches.

Ceylon (*Skinner*).

Type, coll. F. Moore.

This is a well-marked southern representative of *C. rosina*.

2. *CHEROCAMPA PUELLARIS*, n. sp.

Nearly allied to *C. oldenlandiæ*, considerably smaller, and altogether paler in colouring; primaries comparatively broader and shorter; the bands broader and slightly waved; secondaries with the pale band wider and whity brown; body with the bands broader, silvery border of tegulæ strongly marked: wings below paler, external border whiter; pectus whiter, venter without longitudinal central whitish streak: expanse of wings 2 inches.

Rawul Pindi (*Hellard*).

Two examples, coll. F. Moore,

This is a well-marked and interesting little species.

3. *CHEROCAMPA INTERSECTA*, n. sp.

Nearly allied to *C. silhetensis*, but narrower in the wings; the black oblique band of primaries narrower and straighter; the pale buff band almost immediately following it considerably narrowed, owing to the fact that the innermost of the five discal dusky lines is placed further from the margin, and consequently runs exactly through its centre; pale rosaceous band of secondaries broader, more uniform in width; body darker above, lateral streak on abdomen less golden, dorsal line more silvery; markings below less defined: expanse of wings 2 inches 6 lines.

Queensland (*Janson*).

Type, B.M.

This is evidently the Australian representative of *C. silhetensis*.

Genus *DILUDIA*.

Under this genus I should wish to correct an error which has accidentally crept into a former paper.

P. Z. S. 1875, p. 260, n. 57: For *Diludia rufescens*, read *Diludia rubescens*.

This is important, as the name *rufescens* has been used before.

9. On the Herons of the Argentine Republic, with a Notice of a curious Instinct of *Ardetta involucris*. By W. H. HUDSON, C.M.Z.S.

[Received October 30, 1875.]

I have observed Herons a great deal, and am strongly inclined to adhere to Buffon's opinion that they are wretched, indigent birds,

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